COMPUTERWORLD

Feds to IRS: Fix project or shut it down

By Gary H. Anthes
WASHINGTON

Taxpayers struggling to file their returns on time can take some comfort in knowing that this year the Internal Revenue Service faces a taxing deadline of its own.

Indeed, time appears to be running out for the IRS' beleaguered Tax Systems Modernization program. Congress recently told the agency it has just two months to prove that the 10-year-old computer project is on the right track or it will pull the plug.

Last week, the IRS was again taken to the woodshed and, like the perennially naughty boy who promises to be good after every scolding, emerged vowing that this time things would be different.

"The story remains the same — 'Give us another billion dollars, and we promise that this time

IRS, *page 28*

ATM alternatives

Cisco, Cabletron prep cheaper, user-friendly switching options

By Laura DiDio and Bob Wallace

ATM is supposed to take center stage at this week's Networld/Interop show but could find itself elbowed out of the spotlight. Internetworking giants Cisco Systems, Inc. and Cabletron Systems, Inc. are prepping two alternatives they claim will deliver the benefits and ser-

Internetworking

vices of ATM without the migration woes.

This two-pronged assault could delay, or even kill, some migration to Asynchronous Transfer Mode technology, some users and analysts agreed.

ATM is a switching technology designed to transmit voice, video and data across digital networks at speeds ranging from 25M bit/sec. to more than 622M bit/sec. But user acceptance has been stymied by high costs, an incomplete standard and a steep learning curve. Hence, years after its conception, ATM is still not mainstream.

For example, Dave Eisenlohr, vice president of computer operations at the Pacific Stock Exchange in San Francisco, said he has put off ATM migration for at least a year, in part because "we don't have enough resources in-house to deploy it now." He said ATM costs include training, staff development and difficulties in start-up, which

ATM alternatives, *page 14*

Cabletron one-ups Bay with switching

By Bob Wallace

To switching-starved Bay Networks users, it's a gift basket.

To hub maker Bay, it's a Trojan horse with dangerous cargo.

"It" is a plug-in switching product due in 90 days from rival Cabletron Systems, Inc. In an unusual move, Cabletron aims to give Bay users sorely needed and long-awaited instant switching for Bay Networks, Inc.'s widely used flagship System 5000 hubs, said Trent Waterhouse, switching marketing manager at Cabletron.

Code-named Bay-B-Huey, the product was designed to capitalize on Bay's inability to deliver a wide range of competitively priced switching modules — which were due in late 1993 — for the System 5000.

Bay-B-Huey will fill those gaps, covering the gamut of options via the Cabletron family of switching products. Bay shipped Ethernet switching last week, but at a price per port that is 50% higher than Bay-B-Huey's.

And Bay won't ship Fiber Distributed Data Interface switching until the fourth quarter; Token Ring delivery is slated for even

Cabletron, *page 16*
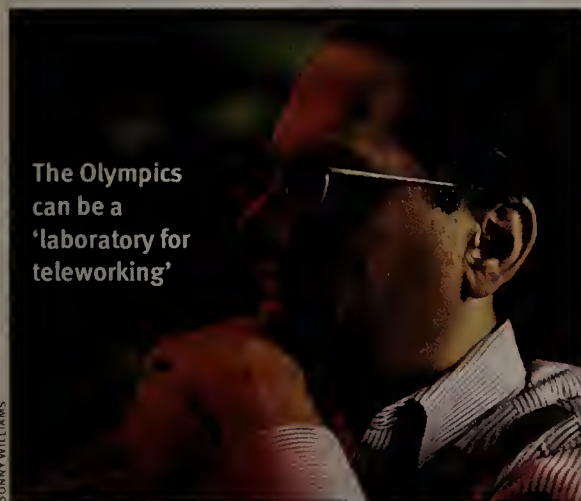

Boston Beer brews quick hop to R/3

By Julia King

Scrap re-engineering. Forget training. And take no more than 24 hours to decide on a configuration.

That's how $150 million Boston Beer Co. — a half-pint compared with most SAP AG R/3 users — managed to implement a full suite of the notoriously complex client/server software in just four months.
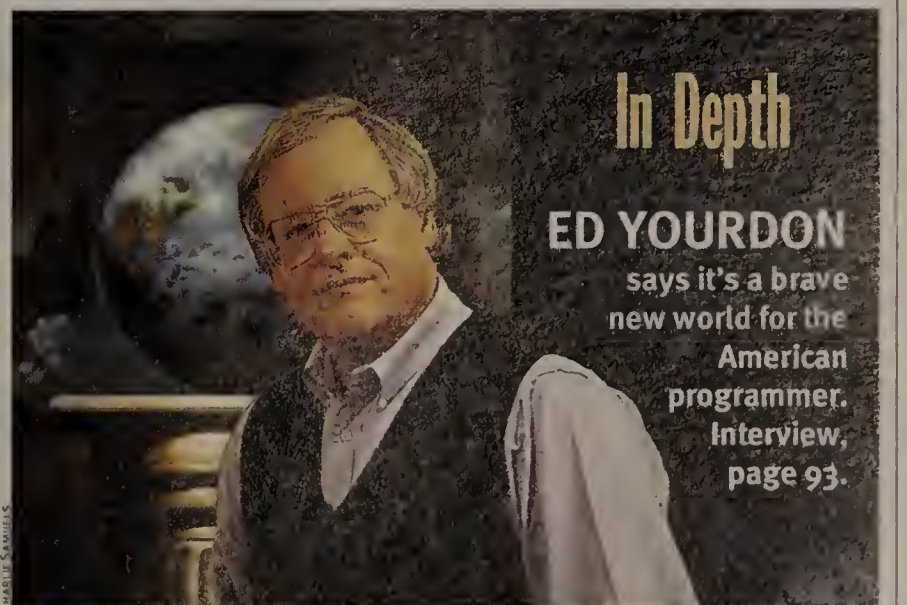
Total cost: less than $1 million — a minuscule and almost unheard-of amount — for software and

Boston Beer, *page 121*

Teleworkers leap Olympic hurdles

By Mindy Blodgett

The Olympics can be a 'laboratory for teleworking'

Telecommuting consultant Michael Dziak

The law offices of Paul, Hastings, Janofsky & Walker in Atlanta are located right in the heart of the Olympic ring, where streets will close and as many as 2 million visitors will overrun the city for 17 days in July.

"I can see 80% of the Olympic venues from my window," said attorney John Steed.

During the Games, up to one-third of the firm's 150 employees will telecommute. The rest, who are needed in the office, will work in split shifts.

The short-term emergency created by the Olympic-size congestion has telecommuting gurus salivating. Many companies are feverishly adding phone lines and modems and buying notebook computers to accommodate the predicted increase of thousands more teleworkers.

Paul, Hastings' offices have no choice but to join what some are calling the biggest

Olympics, *page 121*

Newspaper

A PUBLICATION OF
IDG

Inside Computerworld

April 1, 1996

News

COMPUTERWORLD's
TechnoTrivia
DO YOU KNOW
• • •
How old the youngest beta tester for Windows 95 was?
The answer is in these pages! Now through May you can play COMPUTERWORLD's game of information retrieval — and turn trivia into treasure!
See page **33** for
"everything you need to know to win!"

Choice Cuts

Call it reverse-recruiting.
Faced with imminent downsizing, IS employees at Simpson Paper Co. are marketing themselves as a group. The goal: lure to their community an employer that seeks an experienced IS department.
See **Careers, page 96**

Go CIO

Help desk

Brainiac

Climber

Octop

Schmoozer

Pass Go, Collect CIO
Why let raw ambition endanger your career? Play our irreverent board game for CIO wanna-bes. It's safer.
See **Managing, page 80**

Technical Sections

Features

Etc.

alt.cw

Ruggedware

More PCs are showing up in blue-collar environments, from forklifts and trucks to construction sites and oil rigs. The following rugged devices can take a beating and keep on clicking.

"Rocky" is a rugged Pentium notebook that weighs 6.4 lbs. and costs nearly $4,000. The vendor, Amrel Technology in Arcadia, Calif., claims Rocky can withstand dirt, oil, grime, vibration, transportation shock, high humidity, salt fog, a drenching rain and, most important, a spilled cup of coffee. Your daily sludge can be literally hosed off. Rocky also comes with an active-matrix color screen for visibility outdoors.

The DuraPoint may be the world's toughest computer mouse, claims Interlink Electronics in Camarillo, Calif. The DuraPoint costs $279. It works even when submerged in water and recently survived a five-story drop during testing in Sweden. "It not only survived [the fall], but emerged intact after being run over by an 18-wheel semi-truck," a spokesman says. The DuraPoint is basically a VersaPoint stick encased in industrial-grade rubber and stainless steel.

A wide variety of industries is taking advantage of O'Neil Product Development's MicroFlash, a 2-inch portable printer that can be worn on a user's belt. It costs $995. The printer gets its data by infrared transmission from a mobile computer or personal digital assistant. The rugged unit is being used to print on-the-spot parking tickets, car inspection reports and receipts for Keno players at the Taj Mahal and Caesar's Palace casinos in Atlantic City, N.J.

Digital snafus

Remember the ill-fated baggage-handling system that delayed the opening of the Denver International Airport a year ago? The Denver airport jinx continues, according to recent press reports:

United Airlines is suing BAE Automated Systems, charging that BAE's baggage system in Denver is so unreliable it's creating "an operational and customer-relations disaster." BAE is countersuing to get its $17.5 million second-installment payment.

Managers at the $5 billion Denver airport forgot to install an intercom system for the internal subway. So when a computer that controls the subway broke down, there was no way to communicate with the trapped passengers. The city fixed the problem by purchasing six bullhorns.

A computer executive was stunned to find that his PC, which was in a steel-and-wood container, was smashed after a flight to Denver. A baggage handler mistakenly put the container wheels-down on the conveyor belt, and the container careened down an incline and was run over by a moving baggage cart.

During a blizzard last October, the airport tower's plastic roof leaked water and snow on computer equipment.

📨 **Send contributions of offbeat news, lists and anecdotes to mbetts@cw.com.**

Fashion designers in Paris are fuming about counterfeiters who use the 'net to peek at new styles and then stitch up quickie knockoffs, the *Associated Press* reports. High-quality images of the designs appear on Web-zines, such as http://www.firstview.com, just after they've hit the runways.

Digital Frontiers

A wide range of privacy experts and corporations have joined forces in the Global Business Privacy Project to tackle two of the most vexing issues for information managers.

The group, founded by privacy expert Alan F. Westin, will try to figure out how multinational corporations can deal with consumer privacy on the Internet and in the European Union's Data Protection Directive. The European privacy directive, which will take effect in mid-1998, is more restrictive than U.S. practices [CW, July 31].

The steering committee includes representatives from big-name companies such as Citicorp, American Express, Equifax, America Online, MCI and the Dallas-based International Association for Human Resource Information Management.

The group plans to meet Oct. 9 and 10, develop recommendations in December and, by early next year, have a set of "business strategy materials" to disseminate.

The fabric of the Web

Competition between Microsoft and Netscape is fierce but not just with Web servers. The feud extends to company paraphernalia, from mugs to polar fleece.

	Microsoft	Netscape
Polar fleece pullover	$55	$54.90
Leather-like portfolio	$17	$15
Boxer shorts	$11.95	$12
Key chain	$7	$6.90
Button-down denim shirt	$39	$42.90
Pen-and-pencil set	$13 to $37	$44.90
Baseball hat	$9	$9 to $14.95
Coffee mug	$4.50 to $15	$12

Source: Merchandise on sale at Internet conferences, March 1996

News shorts

Microsoft does about-face

After ridiculing the idea of inexpensive, low-end computing devices for home use, **Microsoft Corp.** is trying to claim the idea as its own.

Microsoft today plans to announce a set of hardware, software and communications specifications called Simply Interactive PC, or SIPC, which hardware vendors would use to build such devices, said Richard Shaffer, president of **Technologic Partners**, a consulting and publishing firm in New York.

The specification, to be announced at the Windows Hardware Engineering Conference (WinHEC) 96 in San Francisco, will allow various operating systems and environments to interact with and control consumer devices such as VCRs, Shaffer said.

SIPC includes plans for a standard, high-speed cable connection between low-end PCs and other consumer gear, he said. Microsoft has already approached major hardware vendors about building the SIPC devices.

Oracle and user group to go separate ways

Oracle Corp. and its international user group have agreed to disagree.

Oracle and the **International Oracle Users Group-Americas (IOUG-A)** won't boycott each other's meetings or hold them at the same time, and Oracle won't sue to enjoin IOUG-A's use of the phrases "International Oracle Users Week" and "IOUW," spokesmen said. The boycott, lawsuit and simultaneous scheduling were threatened in January when a rift developed over the focus and control of IOUW [CW, Jan. 22].

Oracle will inaugurate Open World, a user conference and exposition, Nov. 3-8 at the Moscone Center in San Francisco. IOUG-A will hold a separate event, IOUW, sometime in the spring of 1997.

HP jumps into CORBA

Hewlett-Packard Co. this week is introducing a C++-compatible product based on Version 2.0 of the Common Object Request Broker Architecture (CORBA) specification.

An object request broker handles communications between objects on a network. HP in 1993 announced plans to develop a product based on the first implementation of CORBA but dropped that project to wait for the multivendor interoperability built in to CORBA 2.0.

Also being introduced is DE/ServiceMonitor, a tool that monitors the status of security, directory and time services in Distributed Computing Environment (DCE) networks.

Oracle7 Parallel Server: Still Unparalleled.

Key Features	Oracle7	Sybase ~~System 10~~ SQL Server 11
Parallel Processing Strategy	☑	☑
Parallel Processing Slideshow	☑	☑
Fault Tolerant Parallel Server (Clusters)	☑	☐
Parallel Query Software	☑	☐
Parallel Index Software	☑	☐
Parallel Recovery Software	☑	☐
Platforms Supported with Above Parallel Features	20+	None

Sybase may have changed the name of their database, but they didn't change its "parallel nothing" architecture. Oracle7's parallel everything database architecture makes open system computers faster and more reliable than mainframes. Call Oracle for the software, 1-800-633-1071, ext. 8110. Call Sybase for the slideshow, but please, call one at a time.

ORACLE®

Enabling the Information Age ™

Sun lights 64-bit server

UltraEnterprise boxes offer more power at same price

By Craig Stedman

Sun Microsystems, Inc. will try to blow away customers with faster performance when it introduces a line of 64-bit Unix servers in two weeks.

Even better, customers briefed by Sun said they were told they will get the extra performance at the same prices they pay now. Meanwhile, the maximum number of processors is rising from 20 to 30.

The new machines also add key redundancy and availability features designed to make commercial shops feel warmer about Sun's enterprise capabilities.

Sun has long faced doubts about its ability to compete on equal footing with Hewlett-Packard Co. and IBM in the corporate server market.

Back in the race

Sources familiar with Sun's plans said the six UltraEnterprise systems, which are slated to be unveiled April 16, should pull the vendor out of the throughput cellar and break new ground on built-in availability.

According to user sources, Sun promises that the new servers will be two to three times faster than its existing hardware because of the 64-bit UltraSPARC chip and a new bus architecture.

"This is one of those quantum leap architecture jumps for Sun," said Cliff Triplett, director of information systems at AlliedSignal

RISC takers

Top 3 worldwide commercial multiuser RISC/Unix vendors by revenue

Total 1995 market revenue: $14.3B

$7B — Hewlett-Packard
$2.8B — IBM
$1.3B — Sun

Source: Aberdeen Group, Inc., Boston

Engine in Phoenix. "Up until UltraSPARC, HP had the faster box. This gets Sun back to a parity that lets them compete on something other than price."

The servers will include redundant power supplies and fans, the ability to replace boards and modules while the system is running and support for shutting down some processors while continuing to operate with others.

Those built-in capabilities resonated with several customers.

"I see Sun moving high availability to be more of a core product and differentiator. I don't hear that from HP as much," Triplett said. AlliedSignal Engine runs its Unix applications on HP servers, and Sun machines handle file serving. But the UltraSPARC-based systems should make Sun

more competitive on the application side, he said.

Brian Slater, managing director at The Chase Manhattan Bank Corp.'s Global Banking division in New York, said he has had to rely on "very inelegant" approaches to ensure that processing continues if a Sun server goes down.

"As server technology has wormed its way more and more into the enterprise, people will no longer accept failures," Slater said. The features promised by Sun "are certainly in the right frame," he added. "The nearer you can get to having a hot standby, the better it is."

Some difficulties

Sun's new servers present two potential drawbacks: Users have to do a box swap to upgrade to an UltraEnterprise model. They also must migrate to the latest version of Sun's Solaris operating system.

"It's not as straightforward a change as Sun would make it out to be," said George Weiss, an analyst at Gartner Group, Inc. in Stamford, Conn. But upgrades within the new line will be much easier, he added.

HP, the leading commercial Unix server vendor (see chart), also won't suffer Sun's rollout in silence for long. Sources said HP is expected to incorporate its 64-bit PA-8000 chip into servers starting this summer. Existing HP systems will be able to handle board upgrades to the 64-bit level.

'net disruptions targeted by IBM recovery services

By Kim S. Nash

IBM last week unveiled two services intended to help IS managers fight acts of man and nature that threaten to disrupt Internet and intranet applications.

The services, which are available via monthly or yearly subscriptions, can protect information systems from natural disasters and events such as security intrusions and network failures.

Industry observers praised IBM's plans and said disaster recovery for Internet sites is crucial, yet few users have done much about it.

Emergency planning for Internet and intranet systems "is an entirely new facet to think about, and we're talking about only a handful of companies that have actually contemplated it," said Winn Schwartau, president of

hardware and software to be set up at IBM's Sterling Forest, N.Y., center to handle processing if Web servers crash.

IBM's Emergency Response Service helps guard against security attacks. Users get a detailed audit of existing security measures and advice on how to plug holes. Users receive a newsletter that advises them about threats to their systems. They also get 24-hour, 7-day-per-week access to 15 security experts at IBM in the event of trouble.

Separately, Internet service provider Icon CMT Corp. said it will offer the IBM protection to its customers. Icon users would pay the New York networker an unspecified monthly fee for IBM's services.

But some users don't want to give outsiders intimate knowledge of their internal systems. The Chase Manhattan Bank

Master of disaster

IBM announced several new services for backing up and restoring Internet and intranet sites during disasters

DISASTER RECOVERY SERVICES

■ $300 to $700 per month for emergency access to IBM's global network

■ $200 to several thousand dollars per month for mirrored Web server hardware, software and databases

SECURITY AUDIT AND EMERGENCY RESPONSE SERVICE

■ $75,000 per year per Internet or intranet connection

■ $15,000 per year per additional site

Information Builders extends its 'data plumbing'

By Frank Hayes

Information Builders, Inc. in New York announced last week that it will extend its popular middleware to give end users much more flexible access to enterprise data.

Enterprise Data Access, which is widely known as EDA/SQL, serves as a "data plumbing" system that transparently connects applications with data sources on mainframes and servers.

The new release, dubbed EDA 4, also lets users request information and then collect the answer later, rather than waiting for the database to respond.

With this capability, called asynchronous messaging and queuing, users can launch complex and time-consuming database queries and then check in later for the result — a particular advantage for remote laptop users.

EDA 4 supports guaranteed delivery of messages, which are stored in a buffer until they can be processed or retrieved.

The new built-in capabilities will allow EDA 4 to connect with enterprise application packages from SAP AG, PeopleSoft, Inc. and Baan Co. that in the past required a separate middleware infrastructure.

The new version will also be able to interoperate with other messaging middleware, such as IBM's MQSeries and Microsoft Corp.'s Exchange.

"It's a step forward, especially with the ability to interoperate

Middleware

with Microsoft and other messaging systems," said Peggy Ledvina, vice president of application delivery strategies at Meta Group, Inc.'s Reston, Va., office. "And with the embedded queue manager, there's an advantage over using separate synchronous and asynchronous message systems."

Q3 shipping

The new release, which runs on Windows NT, Unix boxes and IBM mainframes, will begin shipping in the third quarter. Prices for each module start at about $5,000.

Other separately priced modules for EDA 4 will support gateways to World Wide Web sites, access to repositories from other vendors and links to third-party systems management tools.

Interpact, Inc., a security consulting firm in Seminole, Fla.

According to a recent survey from O'Reilly & Associates, Inc. in Sebastopol, Calif., 60% of large and midsize companies already run at least one intranet and 76% have World Wide Web or Internet access.

"People have got to think of the Web just like they do any critical application," said Bruce Rosen, senior technical consultant at Cambridge Technology Partners, Inc. in Cambridge, Mass.

"If you don't do a good job with recovery procedures, you're almost guaranteed to get burned," Rosen said.

IBM's Internet Recovery Services give users access to IBM's proprietary global network if downed pieces of the public Internet block traffic to and from customers' Web sites.

Users also can opt for backup

Corp., for example, plans to launch today a Web site of several hundred pages. But contingency plans will be carried out at the bank.

"We want to make sure that we always know what's happening with our [Web] services," said Lisun Joao, second vice president of corporate technology at Chase in New York.

The bank has mirrored its Unix-based Web server hardware, software and databases so backup gear will kick in automatically if the primary server crashes.

Chase also has set up two points of presence with its Internet service provider to handle a network failure beyond the bank's boundaries. If one Internet path fails, queries and data will be rerouted to another avenue.

IBM frames public SNA traffic plan

By Bob Wallace

IBM is finally taking SNA-over-frame-relay seriously.

The company endorsed the idea of moving SNA traffic from private lines to public frame-relay networks last week when it announced plans to sell the needed user equipment and signed a deal with frame-relay switch power Cascade Communications Corp.

Sending data over a public frame-relay network can save users 30% to 40% on wide-area networking charges.

Mass appeal

"I'm sure more users will move to frame for carrying SNA traffic because there's still a fairly pervasive mentality where users do whatever IBM says is right," said Dan Althof, senior network planner at First Bank System in St. Paul, Minn. The bank runs SNA over a frame-relay network with more than 400 sites.

"This will help bring SNA-over-frame solutions to the mass market," added Beth Gage, a broadband consultant at Tele-Choice, Inc. in Verona, N.J. "IBM has frame-relay access features on existing products, but the products are inflexible and incredibly expensive."

That's where frame-relay access device (FRAD) market leader Sync Research comes in. IBM will resell Sync's Frame-Node FRADs, renamed as 2218 Nways.

Long-distance and local carriers have been selling the fast-packet, frame-relay service to mainframe SNA shops for years, but IBM is just now moving aggressively into this market.

Users who already run SNA over frame-relay networks say the IBM/Sync deal will make that scheme attractive to a broader audience. For example, Althof said the bank went with Sync's FRADs because IBM's didn't support bisync, a protocol used by most automated teller machines.

Gage added, "This relationship combines IBM's long-proven expertise in SNA networking with Sync's main strength of providing devices access to IBM hosts over frame-relay networks."

IBM also announced it will immediately resell the popular and low-cost Cascade carrier switches as part of its WAN product line worldwide. The duo also formed a joint development organization that will augment the switches with a wider variety of interfaces to make them more useful for user networks.

Ex-IBM group sues IRS

By Craig Stedman

A group of almost 750 former IBM employees last week sued the Internal Revenue Service for taxing the severance payments they received when they were let go by the computer giant. The suit could also have implications for workers downsized out of their jobs at other companies.

The suit contends that IBM employees who were laid off or took voluntary buyouts from 1991 to 1994 shouldn't have had to pay taxes on their severance packages. The workers had to sign promises not to sue IBM, which turned the payments into settlements rather than taxable wages, the suit claims.

IRS policy

The IRS declined to comment, other than to say that its standard practice is to deny claims for refunds of taxes on severance payments. IBM also wouldn't comment beyond confirming that workers who took buyouts are required to sign a statement disavowing future suits against the firm.

Neil Kimmelfield, a partner at the Portland, Ore., law firm that filed the suit, said he has been contacted by workers in similar straights from more than 50 other companies.

Microsoft aims NT at multiprocessing

By Bob Francis

Microsoft Corp. this week will demonstrate new scalability features aimed at positioning Windows NT Server as a match for Unix on multiprocessing servers.

With the new features, which will appear on Windows NT 4.0 later this year, Microsoft is targeting the operating system at high-end department and low-end enterprise applications, said analysts and industry officials familiar with Microsoft's plans.

What's on tap

The features include decision support, point-of-scale and data warehousing functions, which currently are the province of Unix.

According to sources who have worked with Microsoft on the features, the company has made a variety of improvements, such as caching, to help NT handle higher levels of multiprocessing.

Currently, Windows NT scales fairly well to four-processor systems, but performance declines rapidly beyond that.

This week Microsoft will demonstrate eight-way multiprocessing at the Windows Hardware Engineering Conference in San Jose, Calif., said George White, president of Corollary, Inc. in Irvine, Calif., which has worked with Microsoft on scalability improvements.

While Microsoft made some of the improvements in the Windows NT 3.51 release, it will make additional improvements in the 4.0 release, which is slated for the second half of this year.

"We'd like to see even more scalability on these systems because we're pushing into NT pretty hard," said an IS manager at a New York financial institution.

Corporate cluster

Microsoft's other strategy to get into the corporate data center is clustering, said Dwight Davis, editor of "WindowsWatcher," a newsletter in Redmond, Wash.

Microsoft has agreements with Digital Equipment Corp., NCR Corp., Tandem Computers, Inc. and Compaq Computer Corp. to provide some clustering application programming interfaces for systems later this year. Most of those offerings will be simple failover, two-node clusters, said sources briefed on Microsoft's plans.

Which way?

Microsoft plans several enhancements to Windows NT Server to increase its scalability to eight-way multiprocessing

Usage for current four-way multiprocessing

- Departmental servers
- Small application servers
- Database servers

Future eight-way multiprocessing

- Decision support
- Data warehousing
- Point of sale
- Large departmental servers

In the driver's seat

Microsoft plans to unveil a new driver architecture at its Windows Hardware Engineering Conference this week.

The Win32 Driver Model is aimed at bridging the gap between Windows 95 and Windows NT applications, said Bill Veghte, group manager at Microsoft's business systems division.

"For developers, that means they won't have to use different drivers for our Windows 95 and Windows NT applications, and it will mean both operating systems will be using faster 32-bit drivers," he said.

The new driver architecture was designed for increased multimedia performance for Windows 95 and NT.

Microsoft also plans a new On Power Management architecture, which will let users keep their PCs powered on at all times, Veghte said.

In addition, sources said IBM, which in the past has been on the periphery of the conference, will play a major role as it tries to show off its ability to deliver NT applications to its customers.

— Bob Francis

News Shorts

CompuServe to go public; hopes to raise $480M

Amid speculation as to whether the Internet will make private on-line services obsolete, a confident **CompuServe, Inc.** is going public. Last week, parent company H&R Block, Inc. said it wants to raise as much as $480 million in an initial public offering of 15 million shares, or 17.7% of its CompuServe subsidiary. At a price of $27 to $30 per share, the company would be valued at $2.44 billion to $2.71 billion, based on an expected 90.2 million outstanding shares. By comparison, rival America Online, Inc., with a slightly larger number of subscribers, is valued at $5.68 billion.

Intranet apps from NetManage

NetManage, Inc. in Cupertino, Calif., plans to ship an intranet application suite today for Windows NT. The core of the IntraNet Server package is the Forum Server, software that lets users conduct threaded discussion using the Net News Transport Protocol. Forum Server allows miniature Usenet newsgroups to gather on intranets. The suite will cost less than $1,000, but it is discounted at $495 through June.

Microsoft updates WinSock doc

Microsoft Corp. last week said it would update developer documentation to differentiate between its proprietary and standard WinSock extensions. Inadequate documentation has led some software developers, including Microsoft itself, to unknowingly create nonstandard WinSock applications that don't interoperate with TCP/IP stacks produced by vendors other than Microsoft. Microsoft and Stardust Technologies, Inc., an interoperability testing lab, have called a meeting at Networld/Interop '96 to discuss the issue, which has led software developers to create faulty WinSock applications.

IBM takes slow route

Playing catch-up, **IBM** announced High Performance Routing (HPR) for several of its internetworking products. HPR lets devices map end-to-end paths across networks before data is sent, provides congestion control and routes data around downed wide-area network links. HPR will be available for the IBM 2217 Nways Multiprotocol Concentrator on April 26 for $3,695. 3Com Corp., Bay Networks, Inc. and Cisco Systems, Inc. announced HPR support several weeks ago.

Barrett leaves Banc One

Robert L. Barrett, chief technology officer at **Banc One Corp.** in Columbus, Ohio, was named to the newly created position of president of the Network Systems and Services unit of Frontier Corp., a telecommunications company in Rochester, N.Y. Barrett's previous duties will be split up across Banc One's information services unit.

'Monster Netra' to surface

Sun Microsystems, Inc. will introduce a multiprocessor version of its Netra Internet server. The so-called "monster Netra" is based on Sun's 64-bit UltraSPARC chip, which also is being used in new uniprocessor Netras that were announced last week with a variety of Internet/intranet software.

Verity throws search party

On-line search engine maker **Verity, Inc.** plans to announce a search product tomorrow that lets users scour the World Wide Web and Microsoft Corp. Exchange documents at the same time. By contrast, the search facility that will accompany Exchange when it ships this week can peruse only Exchange-related information. Verity's TopicSearch for Microsoft Exchange is priced at $395 per server and $49.95 per client.

BellSouth teams with Iona

BellSouth Corp. said it is working with **Iona Technologies Ltd.** in Dublin, Ireland, to implement Iona's object-oriented middleware on IBM mainframes. The project will initially port Iona's Orbix object middleware to IBM's MVS OpenEdition mainframe operating system, with future plans to support earlier releases of MVS and integration with Cobol, CICS and the IMS transaction manager. IBM and Digital Equipment Corp. already offer MVS versions of object middleware.

Lotus upgrades Notes Network

Lotus Development Corp. will announce Release 2.0 of its Lotus Notes Network (LNN) at Networld/Interop '96 in Las Vegas this week. The network is a Notes-based on-line service that replicates Notes technical papers, product information and discussion lists down to subscriber's Notes servers. Release 2.0 will let users access LNN over the Internet, support 28.8K bit/sec. and X.25 service via CompuServe and let client machines directly access LNN servers.

The Quarterdeck connection

Quarterdeck Corp. is on the move. This week, it will introduce software to connect Novell, Inc. NetWare users to the Internet. The company recently acquired **Datastorm Technologies, Inc.**, which makes the popular dial-up modem software Procomm Plus, and said it would acquire **Future Labs, Inc.**, which makes collaborative technology to allow users to share work over the Internet.

EMC boosts disk performance

EMC Corp. tomorrow will announce a performance boost of almost 60% on its Symmetrix 5500 mainframe disk arrays, sources said. The faster speed results from a new microcode release plus better cache memory management and beefed-up connections to mainframe Escon channels. The microcode is free, while hardware upgrades range from $225,000 to $1.3 million. EMC, based in Hopkinton, Mass., surpassed IBM in mainframe disk shipments last year.

51 Issues for $48 *$39.95*

Yes, I want to receive my own copy of COMPUTERWORLD each week. I accept your offer of $39.95* per year - a savings of $8.00 off the basic subscription price.

First Name _____ MI _____ Last Name _____

Title _____ Company _____

Address _____ City _____ State _____ Zip _____

Address Shown: ☐ Home ☐ Business ☐ New ☐ Renew   Basic Rate: $48 per year

* U.S. Only. Canada $95, Mexico, Central/South America $150, Europe $295, all other countries $295. Foreign orders must be prepaid in U.S. dollars.

Please complete the questions below to qualify for this special rate.

1. BUSINESS/INDUSTRY (Circle one)
- 10. Manufacturer (other than computer)
- 20. Finance/Insurance/Real Estate
- 30. Medical/Law/Education
- 40. Wholesale/Retail/Trade
- 50. Business Service (except DP)
- 60. Government - State/Federal/Local
- 65. Communications Systems/Public Utilities/ Transportation
- 70. Mining/Construction/Petroleum/Refining/Agric.
- 80. Manufacturer of Computers, Computer-Related Systems or Peripherals
- 85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
- 90. Computer/Peripheral Dealer/Dist./ Retailer
- 95. Other_____ (Please Specify)

2. TITLE/FUNCTION (Circle one)
IS/MIS/DP MANAGEMENT
- 19. Chief Information Officer/Vice President/ Asst. VP IS/MIS/DP Management
- 21. Dir./Mgr. MIS Services, Information Center
- 22. Dir./Mgr.: Network Sys., Data/Tele. Comm., LAN Mgr. /PC Mgr., Tech Planning, Admin Svs.
- 23. Dir./Mgr. Sys. Development, Sys. Architecture
- 31. Programming Management, Software Developers
- 41. Engineering, Scientific, R&D, Tech. Mgt.
- 60. Sys. Integrators/VARs/Consulting Mgt.

CORPORATE MANAGEMENT
- 11. President, Owner/Partner, General Mgr.
- 12. Vice President, Asst. VP
- 13. Treasurer, Controller, Financial Officer

DEPARTMENTAL MANAGEMENT
- 51. Sales & Mktg. Management
- 70. Medical, Legal, Accounting Mgt.

OTHER PROFESSIONAL MANAGEMENT
- 80. Information Centers/Libraries, Educators, Journalists, Students
- 90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)

<u>Operating Systems</u>
- (a) Solaris
- (b) Netware
- (c) OS/2
- (d) Unix
- (e) Mac OS
- (f) Windows NT
- (g) Windows
- (h) NeXTstep

<u>App. Development Products</u> ☐ Yes ☐ No
<u>Networking Products</u> ☐ Yes ☐ No

COMPUTERWORLD

B246-B

♻ Recycled Paper

BUSINESS REPLY MAIL

FIRST CLASS MAIL   PERMIT NO. 55B   MARION, OH 43306

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTERWORLD

P O BOX 2044
MARION OHIO 43306-2144

Internet, intranet support goes global

By Patrick Dryden

Multinational corporations soon will be able to extend their intranets globally and have someone else take responsibility for delivery, security and local support.

Scitor International Telecommunication Services, Inc. in Atlanta this week will launch dial-up access to its TCP/IP network that links 250 cities in 100 countries.

Scitor is offering commercial access to the private network and portfolio of support services of parent company SITA Group.

In addition, a partnership with Internet pioneer BBN Corp. in Cambridge, Mass., has opened up Scitor's IP backbone. The partnership also enabled the BBN Planet group to introduce global Internet connectivity service last week.

"Either route offers multinational corporations a truly global, managed IP network for building an intranet," said Caroline Robertson, research manager for business network services at International Data Corp. in Framingham, Mass.

Scitor has complete control over its private network, which should reassure users who fear the public Internet's lack of control over reliability, throughput and security, Robertson said.

"Scitor could provide better management, security and performance than carrier alliances because it owns the backbone from end to end, instead of having to hook up separate networks," said Timothy Burke, communications analyst at The Yankee Group in Boston.

Both Scitor and the joint ventures driven by carriers can provide a single point for global network services. But these Internet services set Scitor apart, Robertson said. And Scitor offers a more substantial international presence, Burke added.

International nets

Scitor provides private and public Internet and intranet services

STRENGTHS

- Backbone network reaches 220 countries with local support
- Services analyze traffic
- Services include X.25, X.28, frame relay, TCP/IP; ATM due out later this year

WEAKNESSES

- Lack of alliances could slow acceptance
- Managing growth will be difficult

Source: Gartner Group, Inc., Stamford, Conn.

"I'm glad Scitor has this infrastructure in place and multilingual help desks to support our future expansion," said Tom Dunigan, corporate network manager at Cabletron Systems, Inc. in Rochester, N.H.

Through BBN Planet, Cabletron will offload traffic for its U.K. office from its private network to the Internet.

With one provider to manage domains worldwide and continued expansion of Internet applications, "we may not need private networks in the future," Dunigan said.

BBN focuses on providing public Internet access, but Scitor seeks to deliver the benefits of both public and private networks.

"Our customers couldn't seamlessly switch between public and private domains, but now they can do that without losing performance and security," said William Bangert, Scitor's general manager for the Americas.

AFTER LOOKING AT LEGACY SYSTEMS FOR 20 YEARS, WE SEE NOTHING BUT POSSIBILITIES.

Transforming Enterprise Systems through Legacy Systems Asset Management.

It's easy to recognize the innovator in COBOL-based legacy systems. We've been the force behind extending the value of more legacy systems than any other application development tools company. But now, you need to truly transform your legacy systems. You need to selectively re-engineer your greatest assets to support new business processes. You need help in taking the step towards the next generation of client/server and World Wide Web technologies. Consider it done. Today, we're introducing Legacy Systems Asset Management.

We can help you transform your enterprise systems on whatever platforms you choose—from mainframes to Windows®, Windows NT, Windows 95, or UNIX®. Front-end your existing applications with a graphical user interface or deploy them on the World Wide Web. You decide.

Legacy Systems Asset Management is a series of tools and services that empower you to manage your IT investments to match your business objectives.

For a free analyst's research report on transforming your legacy systems, call us at 1-800-632-6265 or visit us at http://www.microfocus.com.

Transforming Enterprise Systems **MICRO FOCUS®**

'net hype blows through software show

Vendors tout Internet-based computing as a cure-all; users offer a reality check, citing security, budget limitations

By Julia King
BOSTON

The Golden Age of Internet-based computing is just around the corner, if you believe the vendors at last week's Database & Client/Server World show here.

They said cheap and easy-to-deploy World Wide Web software will displace costly and unwieldy client/server systems. Infrastructure and support costs will plummet. User productivity and customer satisfaction will flourish.

Then there is reality, where budget constraints, legacy systems and security factors are too big to ignore.

Massachusetts Bay Communi-

ty College in Wellesley, Mass., doesn't have the funding or the in-house expertise to convert a new client/server student information system for use over the Internet.

At MetroWest Medical Center in Framingham, Mass., the new management's concern about data security has brought to a halt work on an internal Web-based patient record system.

MetroWest was recently acquired by Columbia/HCA Healthcare Corp. in Nashville.

"The Internet holds all sorts of possibilities, but health care companies are conservative," said Jim Evangelista, manager of medical informatics at MetroWest. "Also, a lot of hospitals are still on mainframe systems with DOS-based PCs."

Security also is a concern outside the health care field. Of 20 Fortune 1,000 companies recently surveyed by Forrester Research, Inc. in Cambridge, Mass., 65% said they wouldn't use the Internet to replace a private wide-area network. More than half cited inadequate security as the chief reason.

But that hasn't thrown vendors off a dizzying course of announcing high-flying Internet strategies and product plans.

For example, a few months ago, browser access to existing client/server applications was news. "Now, it's a no-brainer. Every vendor has to have it," said Erin Golden, director of marketing at Software 2000, Inc. in Hyannis, Mass.

The next step, Golden said, is development of "functional Internet extensions" to applications software. A recent example is Dun & Bradstreet Software's Internet-based SmartStream requisitions application, which lets browser users place electronic purchase orders in to an enterprise SmartStream system.

Meanwhile, only a minority of users are ready to deploy all of what has been announced, said J. Kent Smith, manager of software services development at The Palmer Group, a systems integrator in Wakefield, Mass.

"The technology has to stop racing forward before people [can] put it all together," Smith said. "What's out there now is still pretty much just announcements."

Internet-based client/server computing promises:

- Centralized application deployment
- Ubiquitous access via low-cost browser software
- No need to train users in the intricacies of hardware and operating systems
- Centralized monitoring and tuning of applications at the server level
- Reduced hardware upgrades

Source: Performance Computing, Inc., Chicago

DEC to give Unix server clusters high-speed boost

By Jaikumar Vijayan

Digital Equipment Corp. is set to announce the first commercial implementation of a technology expected to significantly boost the performance and availability of clustered Unix servers.

TruCluster, slated to be announced on April 17, is based on a 100M byte/sec. Peripheral Component Interconnect-based technology called Memory Channel interconnect.

"It is a very exciting product," said Jonathan Eunice, an analyst at Illuminata, Inc. in Nashua, N.H. "Most Unix clusters today operate across [technologies such as] SCSI storage interconnect, which deliver at best 20M to 40M bytes of bandwidth. Here we are talking closer to 100M bytes."

"The idea of high-speed memory channeling is very interesting. It sounds like it will reduce some of the bus constraints" in interconnect technologies, said Brent Schmoker, a system engineer at FHP, Inc. in Inglewood, Colo.

Clustering is a performance-enhancing technique in which multiple systems are tied together and work as one system. Software and applications share the cluster's combined resources. The technology is increasingly being

used to boost server availability and fault tolerance by uniting two servers.

"It is something we are already considering doing. We deal with a lot of live data, and we want to make sure that we can recover from any problems" as soon as possible, said James Del Genio, a desktop and network development manager at Bell Canada in Toronto.

All in one

TruCluster will merge into one package the capabilities now provided by AdvantageCluster, the company's quartet of cluster offerings, said Terry Shannon, editor of "Shannon Knows DEC," a newsletter in Ashland, Mass. This includes products such as Database Server, File Server and Available Server.

TruCluster will be tightly integrated with Oracle Corp.'s Parallel Server. That will make it easier for users to port applications on Oracle databases in a clustered environment. Digital, a pioneer in clustering, isn't the only one with such a product. Tandem Corp. has a similar interconnect technology called ServerNet.

Users cautiously explore use of Internet to access corporate databases

By Dan Richman
BOSTON

Many users at the Database & Client/Server World conference here last week had great ideas about how to offer access to their corporate databases via the Internet. But they also had great qualms about actually doing so.

Valerie Howard, a consultant at ATC Leasing Co. in Louisville, Ky., said she wants to let the company's 2,000 truck drivers update driving logs from the road and receive information on road and weather conditions in return.

Nancy Whitney, a systems consultant at Key Corp bank in Cleveland, said she would like to let users check their 401(k) balances so they could see how their investments are faring.

John Murrin, director of PC development at Dexter Shoe Co. in Dexter, Maine, said he would like to give factory-floor workers direct access to inventories.

All these attendees said they will likely use the Internet to accomplish those goals, but not without some trepidation.

"It's great to talk about tearing down the firewall. But how?" Howard asked. "GM and Ford are our customers. We'd love to let them into our database, but they can't have competitors finding out which models we're taking where." That's why ATC Leasing will start with a private network

and then think about the Internet, she said.

"Everyone is high on the Internet, but all I've seen out there so far is simple forms to fill out for entering records," Whitney said. "How useful will the Internet be in daily life, handling complex queries with lots of qualifications? We just don't know yet."

Murrin said he doesn't like depending on telephone lines for data access. "With a traditional client/server setup you have a lot more control over the plumbing," he said.

Pundits speaking at the conference said users have little to fear. "It will change the whole ecosystem of business within the next three years," predicted keynote speaker John J. Donovan, CEO of Cambridge Technology Partners, Inc., a venture capital firm in Cambridge, Mass.

The Internet has even made an evangelist out of skeptic Richard Finkelstein, president of Chicago consultancy Performance Computing, Inc. He said the Internet "is a much better way to do client/server computing, a superior model. It's the future."

Conventional client/server computing took a bashing from some users and speakers, who called it inherently unwieldy, complex and outmoded. Hailed only a few years ago as a flexible and cheaper alternative to mainframes, it was a popular target for scorn at the show.

It's showtime

The following were announced at Database & Client/Server World

VENDOR/PRODUCT	FUNCTION	PRICE
Syncsort Backup Express 1.0	Fast GUI network backup and restore for Unix, Windows NT and NetWare	$2,500
Compuware Conversion-Xpert 1.0	Converts data among more than 60 Unix, mainframe and desktop DBMS formats	$15,000 and up
Texas Instruments Software WebCenter	Development environment for creating Internet applications	$3,500 and up
Postalsoft TrueName Library 2.0	Parses and standardizes company name for mailing	$3,500 and up
Mercury Interactive WinRunner 4.0	Automatically creates software tests under all versions of Windows	$2,850

S-Designor makes
your *dream* database a reality.

Now you can create the databases you've always dreamed of with S-Designor's comprehensive and powerful modeling environment.

The model for client/server solutions.

Discover what information is critical to your database design with process modeling. Design and maintain optimized databases by separating conceptual and physical decisions with S-Designor's bi-level modeling technique.

And since S-Designor supports more DBMS platforms than any other modeling product, you can generate, maintain, reverse engineer and document databases in any development environment.

Finally, advanced teamwork features add the versatility and control you need for team projects.

So visit the Powersoft Web site and give S-Designor 5.0 a try. Or call 1-800-395-3525 for more information and make your dreams a reality.

**Bi-level Data Modeling • Process Modeling
Over 30 DBMS Platforms • Reverse Engineering
Central Data Dictionary**

Download your free evaluation product at http://www.powersoft.com

Powersoft.

Exchange ships, duels with rivals

By Tim Ouellette

Like baseball teams in spring training, groupware vendors are showing off their latest recruits.

When Microsoft Corp. unveils its long-awaited Exchange messaging and groupware software this week at Networld/Interop, both it and rival Lotus Development Corp. will trot out customers who have decided to move from other mail systems to their respective groupware offerings.

The heated, three-way competition for customers among Microsoft, Lotus and Novell, Inc. could put users in an excellent bargaining position, analysts said.

Exchange is a long-awaited upgrade to Microsoft Mail, Microsoft's LAN-based messaging software. Like Lotus' CC:Mail and Novell's GroupWise 4.x, Mail can be hard to scale and manage at large enterprise sites.

Exchange is a client/server messaging system that includes some groupware features, such as

Let the bidding begin!

Users may have a chance to haggle over these prices for groupware:

group ware

		Microsoft's Exchange	Lotus' Notes 4.0	Novell's GroupWise 4.1
Client		$54	$55 Notes Mail only $69 Notes desktop $275 Notes developer	$625 (five-user pack)
Server		$529	$495	$2,495
Simple Mail Transfer Protocol connection (Internet Mail)		$377	$2,295	$2,995
Total cost for 100 users*		$6,500	$9,200	$13,900

*Costs based on volume discounts

multiuser discussions, forms routing and group scheduling (see chart for pricing).

"The announcements [of user conversions] are indicative of how extreme the competition for this market is going to be," said Matt Cain, an analyst at Meta Group, Inc. in Stamford, Conn.

For example, The Boeing Co.

in Seattle and its 65,000 users are moving from a hodgepodge of messaging systems, including CC:Mail and Notes, to Exchange, which it is running on Microsoft's Windows NT Server platform.

"We wanted to go to NT Server to be consistent with our desktop environment [Windows] and for

the administration of the system," said Bob Jorgensen, a Boeing spokesman.

Accounting giant Ernst & Young is moving the other way. It will move 66,000 users from Microsoft's Mail 3.x to Notes 4.0, which shipped in January.

The firm switched to Notes because Mail wasn't running well in

a mixed PC/Macintosh environment and because Exchange is limited to the NT Server platform, said Jeff Held, a partner at Ernst & Young's Technology Services Practice in New York.

But price won't be the only factor. Analysts and users agreed that the upgrade decision often will depend on a firm's platform.

"Users may look at Exchange and see that it doesn't have the same kind of strong development environment or platform support as Notes 4.0, while others may say that Exchange does a lot of what Notes does [at] a lower cost," said Ian Campbell, an analyst at International Data Corp. in Framingham, Mass.

Microsoft and Lotus also will announce migration tools aimed at smoothing the switch from rival messaging products.

Lagging behind is Provo, Utah-based Novell, which won't ship its GroupWise XTD upgrade until this summer. Although there is a loyal following of GroupWise users, analysts said Novell will be hard-pressed to grab sales beyond its base of networking customers.

ATM options

CONTINUED FROM PAGE 1

can add 25% to the total price. And the associated learning curve can push implementation back by months, Eisenlohr added.

Cisco's salvo is NetFlow, a router-based technology that will reportedly provide the same speed and quality of service as ATM networks but via familiar routing devices.

The idea is to significantly cut administrative costs, which typically account for 40% of total networking budgets and under ATM can rise even more, said Eric Hindin, an analyst at The Yankee Group in Boston.

Unbeknownst to users, Net-

Flow is already embedded in Cisco's Series 4000 and 7000 routers, sources close to the firm said. Cisco had planned to let the cat out of the bag in late spring, according to internal company documents obtained by *Computerworld*.

If Cisco is taking a top-down approach, initially targeting enterprise backbones, Cabletron is tackling ATM from the bottom up, at the intranet level.

Available within 90 days, Cabletron's SecureFast Virtual Switching (SFS) embeds high-performance routing into all Cabletron I960-based switches and hubs released since 1993. That lets users use the switches and hubs to build virtual networks that deliver ATM-like performance and benefits (see related story and chart).

After three years of ATM hype,

the time is ripe for alternatives, said Tom Nolle, president of CIMI Corp., a consultancy in Voorhees, N.J. "What Cisco and Cabletron have done is create proprietary switching schemes that are more complete than ATM and won't stop users from moving to ATM later," Nolle said.

Hindin added, "Users are clamoring for higher bandwidth and guaranteed quality of service." NetFlow and Cabletron's SFS could significantly delay ATM implementation because they are much easier to upgrade — "there's [virtually] nothing new to learn," he insisted.

Selby Wellman, Cisco executive vice president, declined to detail NetFlow beyond characterizing it as a "follow-on" to Cisco's Fusion strategy. Cisco is committed to

ATM, but, he hinted, "it won't be the only big player" in high-bandwidth connection-oriented technologies.

"Customers have been kicking the ATM tire for the past two years, delaying implementation mainly because of the pain and grief in migration. If there's an alternative that users can adopt with minimal interruption to their network, why rip everything out just for ATM?" Wellman asked.

Best of both worlds

Functionality gain minus migration woes appealed to an information systems manager at an Internet service provider who was briefed by Cisco. The manager, who requested anonymity, said NetFlow gives him all the benefits of ATM — high-bandwidth speed and quality of service — while minimizing the need to make expensive changes to the network.

"That saves me time, money and lets me administer my networks without adding new management staff. Best of all, it cuts down on my Excedrin intake," the manager said.

James Wiedel, director of networking at the University of Southern California in Los Angeles, said, "USC may consider testing ATM at some point in the somewhat distant future, [but] SecureFast works well and is available now. ATM is still emerging and is largely unproven."

SecureFast flavors

As expected, Cabletron this week at Interop will formally unveil its high-bandwidth alternative to ATM — the SecureFast Virtual Network technology [CW, March 25].

There are four separate SecureFast components. They are:

● **SecureFast Virtual Network Server**, which delivers ATM quality of service to Cabletron's Spectrum network management platform. It costs $45,000.

● **SecureFast Switched Client** software, which lets administrators make all changes in software, obviating the need to physically make changes to network configuration. Pricing depends on the platform.

● **VLAN Manager**, which provides administrators with ATM connection-oriented access to monitor users and devices anywhere on the network. It costs $5,995.

● **VNET Manager**, which provides detailed audit trails and a breakdown of network usage charges by user and departments. It costs $15,000.— *Laura DiDio*

High-bandwidth options

ATM	Cisco's NetFlow	Cabletron's SecureFast Switching
● Connection-oriented switching	● Connection-oriented switching; mimics ATM quality of service	● Connection-oriented switching; mimics ATM quality of service
● Quality of service	● Requires new router interface cards and processors	● Provides various switched Ethernet and 100M bit/sec. FDDI
● 155M bit/sec.	● NetFlow firmware included in the past two releases of the Series 4000 and high-end routers	● Requires the SecureFast Switched Client firmware upgrade and the SecureFast Virtual Network Server
● Requires major changes to the existing network infrastructure	● Runs on the Series 4000 and 7000 routers; a new NetFlow-specific platform ships in 18 to 24 months	

IBM's SystemView benefits from Tivoli buy

By Bob Francis

IBM is expected to tease Networld/Interop '96 users with a glimpse of its plan for linking Tivoli Systems, Inc.'s distributed management environment to IBM's System-View, according to sources briefed by the company.

As expected, Tivoli will become the basis for IBM's distributed management strategy, with NetView for AIX — IBM's Unix offering — integrated into the Tivoli Management Environment (TME). IBM also plans to add the data center-oriented SystemView for MVS to TME, the sources said.

But beyond that, there is still plenty of work to do in terms of ironing out which systems management tools supported by NetView will also be supported by TME. And that will take time, sources said.

"We expect to see more definitive product integration by early next year," said Paul Mason, an analyst at International Data Corp. in Framingham, Mass.

IBM's systems management road map

With Tivoli, IBM gets the following:

Tivoli Management Environment

Integration with a variety of systems management applications aimed at distributed computing environments

Internet management

IBM purchased Tivoli for $743 million in February, and since then, users of IBM and Tivoli systems management products have wondered how the firms would meld their complementary technologies.

Cooperation key

Stephen O'Pry, information systems manager at Montell USA, Inc., a chemical manufacturer in Wilmington, Del., said it will be best for IS managers if the two firms work well together. "IBM has a good handle on the mainframe side of the house, and Tivoli knows the distributed side," he said.

IBM will try to reassure Tivoli's developer partners that it will maintain the autonomy of the division. It will be based in Austin, Texas, and will be run by its current CEO, Frank Moss. Moss is an alumnus of Lotus Development Corp. — another high-profile IBM purchase — and IBM.

Tivoli partners with independent software vendors and other systems management providers who link with the firm's TME. Some of those software vendors, such as Legato Systems, Inc. in Palo Alto, Calif., have products that compete with IBM's storage management offerings. "IBM's got to maintain Tivoli's independence or [it] will lose its value to IBM," said John Dunkle, president of Workgroup Stra-

tegic Services, Inc. in Portsmouth, N.H.

IBM had promised distributed systems management tools with SystemView for some time. But when it failed to deliver, IS managers began off-loading applications from mainframes to distributed systems.

The Tivoli deal fills in that gap but raises questions about what will happen to IBM's distributed systems management tools.

According to sources at IBM who have watched the infighting between the SystemView group and the new Tivoli division, Tivoli has emerged with a good deal of the clout needed to call its own shots.

As if to emphasize its independence, Tivoli recently joined with SunSoft, Inc. to define management interface standards for Internet software.

Driving a virtual bargain

DealerNet builds, runs Web sites for automobile dealers

By Mitch Wagner

Maybe it's called the information superhighway because there are so many car companies there.

Gulf States Toyota, Inc., a southeastern U.S. car distributor, recently signed a deal with DealerNet, an on-line host firm, to put its 140 dealers on the Internet. This is the latest in a series of recent agreements for DealerNet, a business unit of Reynolds and Reynolds Co. in Dayton, Ohio.

DealerNet's clients said they were drawn to the company because it can provide a complete Internet installation. The firm builds Internet sites and runs them, leaving information systems managers free to run the rest of their business in peace.

"Other automotive Web site builders cannot offer that type of service with DealerNet's kind of quality," said Walter Rich, electronic communications specialist at Saab Cars USA, Inc. in Norcross, Ga.

By May 1, 590 Toyota and Saab car dealers nationwide will start going on the World Wide Web via DealerNet. DealerNet currently has 140 car dealerships of many makes on-line. And there are more than 600 dealers listed in the Yahoo directory, a Yellow Pages for the Web.

DealerNet's end of the bargain will be to design and host Web sites that provide information about the dealerships and their products, management and community activity.

Parental clout

The Reynolds and Reynolds link is an important one for user firms. DealerNet's parent company is a $911 million outsourcer that serves the automotive and health care industries. "We already have the relationship with Reynolds and Reynolds, so they're a proven service for us," said Angie Sherrell, director of dealer services at Gulf States Toyota.

That link to an outsourcer also means dealers will eventually be able to easily integrate the Internet into their other business systems. For instance, Saab Cars USA is considering making auto service records accessible on-line so customers can use the Internet to check whether it is time to get their oil changed or have other scheduled maintenance done.

"It opens up future possibilities for dealers and customers to tie the Internet in to back-office facilities," Rich said.

Ford's home page *is among the 140 sites developed by DealerNet. Dealers will be able to link their other systems to the sites in time.*

As the urge to do business on the Internet grows, companies are looking for vendors that can provide both Internet connectivity and traditional IS needs.

And systems integrators and outsourcers are responding. For example, Electronic Data Systems Corp. in Plano, Texas, opened an Internet business unit last year, as did boutique systems integrator Cambridge Technology Partners, Inc. in Cambridge, Mass.

For car dealerships, the spark of attraction between them and the Internet lies in the 'net's near-instant access to reams of information.

"Buying a car is a complex purchase," said Gary Nielsen, marketing programs and special events manager at Ford Motor Co. "People try to gather as much information as they can before going into buying mode."

DealerNet runs on twin Silicon Graphics, Inc. Challenge DM servers that are located in its offices in Seattle.

The servers are connected to the Internet via two T1 lines provided by Interconnected Associates, Inc. in Seattle.

  Shipping firm weighs an intranet. See page 65.

Java bug; users shrug

By Frank Hayes

Researchers at Princeton University have found yet another security problem with Java, Sun Microsystems, Inc.'s language for developing applications for the World Wide Web.

And Sun, which learned of the problem in a routine call to the Princeton researchers on March 22, has again provided a quick fix, the Mountain View, Calif.-based company said. The fixes will be in a new release of the Java Development Kit due early this month.

Netscape Communications Corp., which supports Java in its Navigator 2.0 browser, said it will implement the changes within weeks.

This cycle of bugs and fixes is becoming routine for corporate developers actively using Java for major applications.

"The official release of Java is 2 months old now, and already we're down to a very minute level of bugs that Sun fixes immediately," said John Gawkowski, a Java application architect at R. R. Donnelley & Sons Co. "If anything, that gives me more confidence."

Trade show offerings

Meanwhile, development tool vendors at last week's Software Development West in San Francisco made these announcements:
- Sun unveiled Java WorkShop, a Java development environment built inside a Web browser. The $295 tool set runs on Windows 95, Windows NT and Solaris. It will ship in May.
- Interactive Development Environments, Inc. in San Francisco is retrofitting its Software Through Pictures object-oriented analysis and design system to generate and reverse-engineer Java code. The Java version will be available in May; prices start at $12,000.
- PostModern Computing in Mountain View, Calif., is shipping BlackWidow 1.0, which connects applications written in Java to object middleware. It costs $99 per user.

Java grounds

The most recent Java problem isn't in the language but in the interpreter that executes Java code. Three Princeton researchers handcrafted a Java applet that could generate and execute raw machine code, sidestepping the Java interpreter's built-in security. A maliciously designed applet could thus perform many operating system functions, such as reading or deleting files.

Cabletron

CONTINUED FROM PAGE 1

further out.

A Bay spokesman doubted the firm's customers would use Bay-B-Huey, but he nonetheless cautioned those that may consider it. "I'm not sure any System 5000 user would buy this product," he said. "I think users would be more likely to make a vendor switch than buy this. From a management perspective, we're not going to support their modules, so manageability becomes a major issue, one that gets real messy."

Adding switching to internetworks typically means far less contention among users for bandwidth, fewer, if any, choke points in the network, quicker response times and higher net throughput.

"We don't want to wait for switching in the 5000s," said Barbara Maaskant, director of information services at the School of Public Health at Emory University in Atlanta. She was briefed by Cabletron on the product. The university uses System 5000s and Cabletron switches. "This is a definite check mark on my wish list and something we'd love to get

our hands on," she said.

Maaskant said Bay-B-Huey would let Emory build a large Cabletron network and protect its large investment in Bay hubs. This configuration would mean systems administration and management could be done from one management package, she said.

Bay-B-Huey

Cabletron's latest hardware package has two slots for LAN switching modules and supports SecureFast Virtual Networking next-generation networking scheme. Other features include the following:

POWER: 750,000 packets per second

SWITCHING MODULES AVAILABLE: Ethernet ($500 per port), FDDI and Token Ring

COMPARATIVE BAY NETWORKS PRODUCTS: Ethernet ($750 per port), FDDI due toward the end of the year and Token Ring due out even later

AVAILABILITY: In 90 days

PRICING: $2,595 for the chassis, $13,695 for the controller, $12,395 for Ethernet switching and $6,395 for FDDI switching

For Bay users, the biggest drawback of the Cabletron plan is that they probably won't be able to manage Bay-B-Huey from Bay's Optivity network management system. But the System 5000 and the add-on can be managed by Cabletron's Spectrum.

Another issue for some users is that Bay-B-Huey connects to the System 5000's front panel instead of its backplane, which results in a less smooth integration.

But some users are willing to overlook such issues.

"When you think of how long it has taken Bay to deliver the switching they've promised with the 5000, it makes sense to look at something like the Bay-B-Huey, which is based on proven technology — technology we already use separately from the 5000s," said Bob Currier, director of network communications at Duke University in Durham, N.C. "No one wants to throw out 5000s, but everyone wants switching, and Cabletron has it."

Bay officials said that since the company doesn't know anything about the Cabletron product, it can't explain how Cabletron could deliver so much switching to the 5000 before Bay could.

Currier said Bay-B-Huey is a good move for users who want FDDI switching because Bay hasn't even revealed product details for this type of high-speed LAN switching (see chart).

The Cabletron package will support the switch vendor's SecureFast Virtual networking capabilities (see related story, page 1). Analysts said Bay-B-Huey will hurt Bay.

Bay-B-Huey "will be most useful for the large number of these companies who are looking to standardize on one vendor," said Eric Hindin, an analyst at The Yankee Group in Boston.

Cabletron can offer switching ahead of Bay because it developed application-specific integrated circuits, the brains of switches, well ahead of Bay, Hindin said.

  Bandwidth-busting tips. See page 55.

Network keeps your
business up and running,
even when you're not.

SunService
THE NETWORK IS THE COMPUTER

Network ⟶

SunSpectrum™ system support. It's for anyone who's concerned about the fate of their mission-critical networked systems. We're the only support team that's 100% committed to UNIX® client/server computing. In fact, we support over half a million systems worldwide. With SunService, you'll have a single point of contact around the world, and multi-vendor support at your disposal. Not to mention the comfort of knowing that SunService is ISO 9001 certified. It's all part of the full range of services we offer. For the nearest SunService sales office or reseller, call us at 1-800-821-4643. Or contact us on the Internet at http://www.sun.com/sunservice Have a good evening.

SunService
THE NETWORK IS THE COMPUTER

Switches

Network Management

WE CAN NOW

SOME NETWORKING

STANDARDS MAT

Introducing Compaq Netelligent. You'd think we'd be happy. We have the

world's best-selling PCs. And servers. So what's left? Just everything in between. Compaq Netelligent is our answer

to that. It's a family of networking products we've put together by acquiring NetWorth, a leading company in Fast

Ethernet, and Thomas-Conrad, a leader in high-performance networking adapters. So now we can offer you the

RECOMMEND

PRODUCTS WHOSE

H OURS. OURS.

NICs

Repeaters

same price:performance and ease-of-use you get from our PCs and servers. Regardless of what platform you use. Whether you're talking about our switches, NICs or repeaters. And we'll continue to add new products and features to make Compaq Netelligent products the best-selling networking solution. Maybe then we'll be content. But probably not.

COMPAQ Has It Changed Your Life Yet?

Imaging takes backseat at AIIM expo

BackOffice products, Web technology top list of ways to speed workflow

By Tim Ouellette and Stewart Deck

The Association for Information and Image Management (AIIM) conference this week in Chicago will be long on information and short on image. Traditionally, the AIIM show has focused on imaging technology, but the growing interest in document management and workflow has made imaging just another data type to be viewed, routed and stored. In fact, when AIIM asked vendors to categorize their products, no one chose imaging, said James Breuer, senior vice president for marketing at AIIM.

"Imaging has crested as a technology application. The focus is now on the image as data," said Nathaniel Palmer, a senior market analyst at Delphi Consulting Group in Boston. Two hot areas that will be featured prominently at the show are products based on Microsoft Corp.'s BackOffice suite and the use of Web technology to improve workflow, Palmer said.

This year's show will reflect the buying and consolidation binge that has racked the market since last year's event in San Francisco. Market leaders FileNet Corp., Wang Laboratories, Inc., IBM and Adobe Systems, Inc. all bought companies last year.

Waiting to unveil

Vendor announcements at AIIM will include the following:

● **IBM** will unveil a Notes client interface to its FlowMark workflow management software. This will give FlowMark and Notes a common user interface and sets up FlowMark work items to appear as a Notes table of contents.

● **Wang** and **Microsoft** will provide an update on the Messaging Application Programming Interface (MAPI) Workflow Framework that both companies are developing. The standard will enable communication between structured workflow applications and electronic-mail software packages that use Microsoft's MAPI to deliver messages.

● **Action Technologies, Inc.** in Alameda, Calif., will announce Action Workflow Enterprise Series 3.0, a workflow software suite targeted at enterprise workflow use beyond the departmental confines of traditional, high-volume workflow systems. It includes Process Builder, Process Manager and Software Developer Kit modules. Starter kits for 10 users will cost $9,995.

● **Optika Imaging Systems, Inc.** in Colorado Springs, will announce an upgrade to its workflow and imaging suite, which will add a viewer for 150 data types and the ability to create file workbook packages that can be sent to users who don't have Optika software.

● **IA Corp.** in Emeryville, Calif., will show off WorkVision 4.0, a high-end, object-oriented, work management software package designed for high-volume, production-oriented applications.

● **Keyfile Corp.** in Nashua, N.H., will demonstrate wide-area workflow with KeyFlow, which runs off Microsoft's Exchange Server. **PC Docs, Inc.** in Tallahassee, Fla., and **Documentum, Inc.** in Pleasanton, Calif., are teaming up to demonstrate a query extension to the Open Document Management application programming interface standard. The extension will let users access and query multiple document management systems from a desktop application.

Sir Isaac Newton

NORTON ANTIVIRUS GIVES YOU THE MOST COMPLETE PROTECTION AGAINST WORD MACRO VIRUSES.

JUST SOMETHING TO THINK ABOUT BEFORE TRUSTING MCAFEE.

If you're using Microsoft Word, get the maximum protection against Word macro viruses. Get Norton AntiVirus. It detects and repairs Word macro viruses automatically. You'll sleep better at night. And you'll be more productive during the day. Call 1-800-822-6417 ext. 9B66 or visit us on the Web at www.symantec.com.

SYMANTEC.

WHEN JOBS THAT TOOK DAYS
TAKE MINUTES, IT'S NOT
A BUSINESS ADVANTAGE.

IT'S AN INVITATION TO
ABSOLUTE DOMINANCE.

*You're cordially invited to run your database one hundred times faster.**

To keep warehouses of information at your fingertips. And turn queries

that were once a waste of time into market leverage. Innovative enterprises

around the world have already accepted. After all, the unparalleled

industry benchmarks set by our VLM64 technology are hard to ignore.

COMPLEX QUERIES
251.9x faster

As is the chance to command four billion times

the memory of 32-bit technology. Naturally, software makers

AD HOC QUERIES
95.4x faster

like Oracle, Sybase, Informix and SAP are,

ORACLE®
64- v. 32-bit
APPLICATION
IMPROVEMENTS†

VLM64 TECHNOLOGY.
INFORMATION IN OVERDRIVE.

to put it mildly, impressed. Enough to create advanced applications

and databases specifically for the Digital UNIX® and OpenVMS™

systems. Empowering businesses to reap the full potential of our

64-bit, very large memory technology. And put absolute dominance

d i g i t a l™

WHATEVER IT TAKES ℠

within your grasp. To reserve your place,

call 1-800-DIGITAL (press 4), visit us at

http://www.digital.com or e-mail to moreinfo@digital.com.

Users strike on-line service gold

By Mitch Wagner

Users seeking big buddies to look out for them on the Internet got a passel of new choices at the Internet and Electronic Commerce conference last week.

America Online, Inc. announced at the New York conference that it plans to open its on-line service to private, corporate forums. That would allow users to harness its network for intranet functionality.

MCI Communications Corp. unveiled new hosting services for World Wide Web sites. Digital Equipment Corp. said it will add new payment-processing software to its Internet server line.

And General Electric Information Services (GEIS) said it plans to launch an on-line service that caters to small business.

The services are aimed at companies that want to leverage the resources of a big vendor. "America Online, for instance, already has a network in place. You don't have to provide the support, just the content," said Marty Isozaki, director of MIS at Long Beach Community Medical Center in Long Beach, Calif.

Bill Bass, an analyst at Forrester Research, Inc. in Cambridge, Mass., agreed. But he added that large companies such as America Online, MCI and GEIS might find it difficult to provide the creative talent that business will require to succeed on-line. User companies might be better off choosing smaller, specialized on-line businesses, he said.

GEIS, MCI and AOL "are stumbling around looking for a gold mine. Maybe they'll be able to find the gold mine stumbling around — but they're not taking sure, purposeful steps," Bass said.

America Online, based in Vienna, Va., has launched America Online Enterprise, a division designed to set up users in private forums on the AOL network using the on-line service's software.

These "private AOLs" would be an alternative to a similar service offered by competitor CompuServe, Inc., private bulletin board services or groupware such as Notes — all of which are designed to allow groups of people to collaborate and share data in a secure fashion.

MCI, which is based in Washington, has launched MCI WebSite services, where MCI will build Web sites for users and maintain and operate the sites at MCI's headquarters.

The Digital and GEIS announcements were long on promise and short on specifics. Digital said it plans to incorporate an on-line payment plan from CyberCash, Inc. into its Web servers. Reston, Va.-based CyberCash offers a secure service to allow users to pay for goods, information and services on-line.

Meanwhile, GEIS, fresh from its flop with the Genie consumer on-line service, is launching the GE BusinessPro on-line service for business-to-business services, beginning April 3. The service was designed to provide assistance with sales leads, business discussion, discounts on express mail, hotels and other business needs, and consulting services.

I dream of Genie

GEIS recently sold the Genie on-line service to Yovelle Renaissance Corp. The service had a peak of about 400,000 customers in 1994, but membership was less than 50,000 last year.

"and while you're at it
can you make that Internet thing work for us?"

Blasting out the intranet sound

By Kim S. Nash

Progressive Networks, Inc. wants to raise the noise level — literally — in corporate intranets.

The Seattle-based vendor this week will ship a revamped Real Audio package for transmitting voice and music on-line for use in internal corporate intranet applications.

But Progressive will have to overcome information systems managers' doubts about whether audio is too bandwidth-hungry to work well and whether there is even a need to add voice to internal applications.

Sounds of skepticism

IS groups said they are interested but remain skeptical. "I want to feel confident that it will work before I offer it to [my users]," said Mike Richling, a systems analyst at the Department of the Environment, a Canadian government agency in Ottawa.

Some IS managers said the flash of multimedia just isn't necessary in telephone directories or human resources information — applications for which most intranets are used today.

But Progressive disagrees. If there were a simple way to add audio to programs, IS would find new uses for it, said Rob Glaser, president and CEO of the 2-year-old company. For example, users could put executive speeches on-line or add audio to computer-based training courses, he said.

To that end, Real Audio 2.0 includes the following new features:
- Links to popular security firewalls.
- The ability to customize Real Audio with Sun Microsystems, Inc.'s Java, Macromedia, Inc.'s Shockwave and other tools.
- Tweaks that allow users to send audio at 8K bit/sec. rather than the 16K bit/sec. rate normally used.

New prices also are on the menu for Real Audio 2.0 (see chart).

Bob Yurkovic has added audio to his intranet. The manager of the information solutions group at Lucent Technologies, Inc. lets select users hear daily news broadcasts, spoken memos and speeches. Lucent, in Whippany, N.J., makes products for wireless computing.

Yurkovic's system uses a previous version of Real Audio that doesn't sport intranet-specific features, and that is a problem, he said. The high bandwidth that the audio signals require means that only 40 users can access the system.

Version 2.0 should help, he said. Plus, Lucent is working with Progressive on ways to split audio signals into smaller chunks that can be more quickly and easily transported. Until then, adding any more users "would kill us," he said.

Real deal		
Progressive Networks will cut prices on its Real Audio server . . .		
	OLD PRICE	NEW PRICE
5-stream server	NA	$495
10-stream server	$1,495	NA
100-stream server	$9,995	$8,495

. . . and introduce special pricing for intranet users	
5-stream server	$495
50-stream server	$1,895
Unlimited-stream server	$3,995
Real Audio client player	$15 per user for 500 users

NA= Product not available

Former agency CIO: Give project time

Few people have been as deeply involved in the IRS' modernization project as Henry H. Philcox, who retired last year after six years as the agency's CIO and the person directly responsible for much of the modernization effort.

Not surprisingly, Philcox last week staunchly defended the agency's technological track record, saying its critics are misinformed and unrealistic in their expectations.

He claimed the public hasn't yet seen many benefits from the project because most of the investment so far has been in the infrastructure — such as designs, plans, networks and buildings — on which applications are to be built.

"If you're building a building, and it is one-third finished, it's kind of ludicrous to ask why you haven't moved people into it yet," he said.

Part of the problem, Philcox said, is that Congress has slowed several promising projects. For example, he claimed funding cuts for the system have delayed the national rollout of a new collections system, which increased tax collections by 28% in a New Orleans pilot project.

Philcox agreed with critics that the IRS doesn't have all the required management and technical expertise in-house, arguing that much of that should come from contractors.

While he said the project remains very difficult, Philcox nonetheless asserted that "any cancellation of the program at this point would be criminal."

Congress seems unpersuaded by Philcox's arguments, and cancellation remains a real possibility, said a senior congressional staffer who requested anonymity. "The IRS has to show us something in the next couple of months, or this is going to be a real tough sell in Congress," he said.

— Gary H. Anthes

Henry H. Philcox, *now retired as the CIO of the IRS, defends the modernization effort*

IRS computer project in peril

we'll put together a plan and have something to show for it,'" said Rep. Jim Lightfoot (R-Iowa), chairman of the Subcommittee on Treasury, Postal Service and General Government.

"This committee is, as of today, out of the business of providing the [Treasury] Department with billions of taxpayer dollars for what is in essence the construction of a house that lacks a blueprint," Lightfoot said. That means the IRS could be out of luck.

The modernization program is intended to improve customer service and tax compliance by providing more accurate and timely data to the IRS. It also is supposed to cut processing time and cost by allowing electronic filings.

But after a decade of effort, $3 billion in spending and some isolated successes, the IRS is still inexplicably floundering in its overall attempt to modernize its antiquated systems, critics say.

Last week, the U.S. General Accounting Office reported the IRS would delay introducing its Cyberfile option for electronic filing to an unspecified date after April 15. The GAO cited various management and technical lapses that led to poor system security.

In reviews stretching back six years, the GAO and the National Research Council (NCR) have consistently faulted information systems management practices at the IRS. In particular, they said the IRS has failed to develop a comprehensive systems architecture and has weak technical management and primitive development practices.

According to Robert P. Clagett, chairman of the research council committee that has written six reports about the tax modernization system, poor IS practices at the IRS are due to its failure to bring in senior technical managers skilled in large systems development.

"Almost all the current executives have come up through the ranks, almost none with technical education," he said.

C. A. Irvine, another research council committee member, was somewhat more sympathetic to the IRS' plight. It suffers from the combined load of government regulations — which hinder flexibility — and an enormously complex systems task, he said.

"On balance, we agree with the assessments in the GAO and NRC reports," said IRS Commissioner Margaret Milner Richardson at a congressional hearing last week.

Rep. Jim Lightfoot *says it is time to pull the plug on the project*

She said the IRS is strengthening and centralizing its IS management and adding more rigor to the process by which it makes IS investment decisions. The IRS also recently hired a chief information officer to replace CIO Henry Philcox, who left the agency last year (see related story at left).

Richardson also said the IRS is preparing four reports, to be delivered to Congress within 30 days, that detail what steps the IRS has taken and will take to get the modernization project on course. One report will also contain an inventory of systems prioritized according to investment payback to the public.

But Gene L. Dodaro, an assistant comptroller general at the GAO, said there is "little tangible evidence that actions being taken will correct the pervasive management and technical weaknesses that continue to place [the project], and the huge investment it represents, at risk."

IRS investments in Tax Systems Modernization
(in fiscal years)

$4.8B*

$2.5B

| 1986–1995 | $695M 1996 | 1997–2001 |

Total: $8B

*Projected

Source: General Accounting Office, Washington

Wang, the billion-dollar software and services company, has partnered with Microsoft® to bring imaging and workflow technology to your business. Which explains why you'll find Wang's imaging and workflow technology already embedded in Windows® 95.

Wang's imaging technology has become the *de facto* standard for helping companies realize the full potential of document imaging. From stand-alone

part of Windows.

desktops and collaborative workgroups to the whole corporation, Wang's versatile and efficient solutions dramatically improve the way your people manage information. Users now have the power to scan paper documents, pictures, or forms and then integrate them into virtually any Windows 95 application. From there, they can be manipulated, annotated, even faxed.

Wang offers the only imaging and workflow solutions that fully leverage the strength of Windows NT and BackOffice™ to deliver large-scale, mission-critical applications. You can streamline critical business processes. And your people, suppliers, and customers can communicate better.

For a free download of Imaging for Windows 95 and more information on our imaging and workflow solutions for Windows 95, Windows NT, and BackOffice, visit us at http://www.wang.com today. Or call us at 1-800-229-2973. You can also download from the Microsoft web site http://www.microsoft.com/windows (in the Windows 95 Software Library).

WANG®

All companies mentioned are registered trademarks of their respective companies.

A few thoughts about motivation and UNIFACE application-building strongware from Jim Rutherford, President/General Manager, Hartford Whalers

COMPUWARE.
Uncomplicating Your Life®

"Frankly I don't know squat about computers or software or any of that client/server stuff, but I do know the guys in the front office swear by our **UNIFACE** strongware and say it's the meanest dog around for building real client/server systems, and we built real systems. But, hey, if you'd like to talk to someone with a little more expertise about the advantages of **UNIFACE** just call Compuware at 800-365-3608 or let me put you in touch with a certain 6'4", 230-pound defenseman of ours. He has a definite knack for moving people in the right direction. A real motivator that guy."

UNIFACE APPLICATION DEVELOPMENT STRONGWARE

Computer Industry

David Packard 1912 - 1996

> 'You shouldn't gloat about anything you've done; you ought to keep going and find something better to do.' — David Packard

By Craig Stedman

David Packard, one half of the duo that founded Hewlett-Packard Co. and pointed the way toward Silicon Valley in the process, died last week. He was 83.

Packard and partner William Hewlett borrowed $538 and started HP in 1939 in a Palo Alto, Calif., garage that has become an icon and an official state landmark.

As the company grew, Hewlett became its technical guru, while Packard was president and later chairman and CEO of HP. Packard had been chairman emeritus since his official retirement in 1993.

Under their leadership, HP developed a strong technical reputation in a succession of industries, including computers in the 1970s. Packard and Hewlett also were credited for their innovative approach to management.

They implemented an egalitarian style that downplayed the then-prevalent reliance on strict corporate hierarchies. HP was a pacesetter in providing employee benefits such as profit sharing and flexible scheduling.

In a statement issued last week, the 82-year-old Hewlett said the code of ethics and management philosophy that Packard created for HP was "the greatest thing that he left behind him."

Packard continued to be a key figure at HP into this decade, when the company emerged from a lackluster period to become the second-largest computer vendor behind IBM.

Packard had semiretired in the 1980s, but he came back to the company in 1991 to lead an operations committee that reorganized HP and set the stage for it to become the dominant force in commercial Unix servers.

"Things really weren't taking off the way he [had] hoped" in the Unix business, said Tom Willmott, an analyst at Aberdeen Group, Inc. in Boston. Packard was able to "refocus the company's business thrust and move it toward huge gains in profits and revenue," he said.

The scientific instruments and testing equipment that HP initially focused on were heavily used by the Department of Defense, and Packard served as deputy secretary of defense from 1969 to 1971. In the mid-1980s, he chaired a presidential committee that recommended major changes in defense procurement policies aimed at reducing spending.

Apple offers 700 million reasons to question health

By Melissa Bane

They may be breaking out the survival kits in Cupertino, Calif. Apple Computer, Inc.'s warning that it will likely post a $700 million loss for its second quarter had analysts betting on the company's long-term chances last week.

Apple's problems — and they are legion — can be fixed, according to Apple's new CEO Gilbert Amelio. He said he will unveil his battle plan next month.

Analysts said the ball is in Amelio's court, and time is growing short to create a turnaround. Apple has been unable to fill high-end system orders because it is overwhelmed by unsold consumer inventory and under attack in key market sectors. All this as it begins layoffs of 1,300 employees.

The company also suffers from the same general slump in PC sales that is affecting the desktop PC industry, said Karen Moser, a senior analyst at Aberdeen Group, Inc. in Boston.

The forecasted loss, compared with $73 million in earnings in the same quarter last year, has brought some analysts to the conclusion that Apple is dead in the corporate waters. Apple is now left with its core markets of education and graphics, but even those stand to be snatched away if the company doesn't quickly adopt an aggressive strategy.

"We're definitely entering a phase where it's make-or-break-it time for Apple," said Dean McCarron, an analyst at Mercury Research, Inc. in Scottsdale, Ariz. "They have about a year to get on their feet."

More than half of the forecasted loss is attributed to inventory write-downs; $175 million is tied to restructuring charges. Final results for the quarter are expected in the third week of April.

Apple's rot comes from bad planning, said Tom Rhinelander, an analyst at Forrester Research, Inc. in Cambridge, Mass. Apple first underestimated product demand last year and then overestimated demand in its fourth quarter, he said. This, combined with customer unease about the company's financial status, has left Apple facing $15 million worth of product returns..

Then, there is the PC sales slump. Semico Research Co. in Phoenix said PC unit sales growth worldwide is expected to decrease 6% this year, compared with a 21.4% growth last year. But Apple's problems aren't as simple as an inability to accurately forecast demand, McCarron said. The reluctance to license its technology early on has caused problems for the company, he said.

But analysts said there still may be hope for the company to gain strength through this area.

The company also needs to rely less on its hardware, Rhinelander said. He suggested Apple could streamline its operations even further than the 1,300 layoffs it announced in January. Apple wouldn't comment on the possibility of more layoffs.

Rumors of a possible takeover, combined with last quarter's loss of $69 million, has sent Apple stock to an all-time low. Last week's news hasn't greatly affected the stock price, but "it's already in the toilet," Rhinelander said. Because of this uncertainty, the company needs to reassure core customers, analysts said.

"They can seal up the wound and start healing even though they've lost a lot of blood," Moser said. "But it's the slow trickle that can drain a company. There may not be a mentality conducive to turning the company around."

Sour earnings at Apple

$188M Q1 1995

$73M Q2 1995

$103M Q3 1995

$60M Q4 1995

Profit/Loss

−$69M Q1 1996

Earnings/Loss per share

$1.55

$.59

$.84

$.48

$0

−$.56

−$5.70 Q2 1996*

| | Q1 1995 | Q2 1995 | Q3 1995 | Q4 1995 | Q1 1996 | Q2 1996* |

altering missile launch codes

*Projected   Figures for 1996 include restructuring costs from January announcement

−$700M Q2 1996*

WIN A BAHAMAS CRUISE FOR TWO!

5 GRAND PRIZE WINNERS
A Bahamas Cruise for 2...a loaded laptop... and a shot at $5,000 in cash!

Win a 4-day cruise to the Bahamas for two aboard Carnival Cruise Lines. While onboard, all five winners will be awarded a state-of-the-art PC Laptop with software — plus a treasure map with all the clues you need (if you're really quick) to solve the ultimate TechnoTrivia puzzle and earn a $5,000 cash reward!

3 FIRST PRIZES
A Sony CD-ROM Discman® PRD-150 Player

A fully portable multimedia solution for laptop computers! A full-feature CD-ROM player with PCMCIA Type II card plus stereo headphones. Photo CD and Windows compatible.

5 SECOND PRIZES
A Sony CCD-PC1 Computer Color Video Camera

The complete video-conferencing and audio-video capture setup! A high-resolution color video camera on a 10" flexible arm with built-in microphone, manual focus control for close-ups and an iris control for lighting adjustments.

Grand, First and Second Prize Winners will be announced by July 15, 1996.

SUPER PRIZES AWARDED EACH WEEK!

1 **Sony Magic Link™ Personal Communicator**
Use smart messaging to help manage all your electronic communications – fax, e-mail, phone or pager.

5 **Dunkin' Donuts "TechnoTrivia Tuesday" Coffee Breaks**
Each Tuesday five winners and their associates (up to 20 people) will receive Dunkin' Donuts gift certificates for 3 dozen donuts, a Dunkin' Donuts coffee thermos, a pound of ground coffee plus an engraved TechnoTrivia plaque.

Please pass along this issue of COMPUTERWORLD to an associate after you have finished playing the game.

This Week's TechnoTrivia Questions

1. Who is pictured on the original Apple Computer logo?

2. Which of the following is **not** the name of a computer language – AESOP, JOVIAL, PAIN or STRESS?

3. What was the price of the first home computer offered through a mail order catalog?

4. How old was the youngest beta tester for *Windows 95*?

5. China once executed an individual for committing what computer-related crime?

COMPUTERWORLD's TechnoTrivia

How to play COMPUTERWORLD's TechnoTrivia

1. Look for the COMPUTERWORLD TechnoTrivia icon to find the answers (planted throughout this issue) to the TechnoTrivia questions listed on this page.

2. Enter the page number containing the correct answers via COMPUTERWORLD's Web site on the Internet:
http://www.computerworld.com

3. On the Web site Entry Form, identify the page number in this week's issue of COMPUTERWORLD where the correct answer to each TechnoTrivia question appears.

4. Or you may enter by fax using the Fax Entry Form below.

Trivia questions and answers provided and/or verified by Christopher Morgan and The Computer Museum.

TO FAX IN YOUR ENTRY, COMPLETE THIS FORM AND FAX THE COPIED PAGE TO:
1-402-572-6410

Question #	Correct Answer on Page #	
1.		FAX ENTRY
2.		FORM FOR
3.		
4.		WEEK 11
5.		

Name

Company

Title

Address

City

State   Zip

Phone

Are you a COMPUTERWORLD subscriber? ❑ yes ❑ no (optional)

What you're trying to put together is already built.

BACKOFFICE

Microsoft **Windows NT Server**	Microsoft **SQL Server**	Microsoft **Exchange Server**	Microsoft **Internet Information Server**	Microsoft **SNA Server**	Microsoft **Systems Management Server**

A family of products, built on Windows NT Server, designed to work together and apart, and with what you have.

| *The only multi-purpose file-and-print, application, and communications server* | *A robust and scalable database management system for distributed environments* | *The only e-mail server with built-in groupware and unmatched reliability and scalability* | *A powerful platform for publishing on the Internet and Intranet* | *A truly flexible gateway for integrating AS/400s and mainframes with LANs* | *A complete and centralized solution for managing networked PCs* |

Your sights are set on enterprise solutions. So why does it feel like your focus is always on integrating systems?

It needn't be. Because now you can choose from a range of products and be certain they'll work together. Each of the servers in the Microsoft® BackOffice™ family integrates seamlessly with each other and with just about anything else you can think of – everything from NetWare® to UNIX® to DB2® to ORACLE.® And all are based on Windows® standards. So your desktops and servers can share one architecture. And you can enjoy simpler, more consistent administration.

Now information can flow unimpeded – from mainframe to desktop, from mail system to database, across networks, and over the Internet. So users can find, analyze, and share what they need. And you can stay focused on the solutions that run your business, instead of the foundation that supports them. To learn more about Microsoft BackOffice, call (800) 426-9400, Dept. A024. Or visit our Web site at http://www.microsoft.com/backoffice.

Let Java cool

Sun CEO Scott McNealy concluded an entertaining speech at the Internet and Electronic Commerce Expo last week by recommending that corporate developers write all their application front ends in Java.

Now McNealy is one smart and funny guy, but I have to take exception to that idea. Rewriting applications in Java is the *last* thing corporate developers need to do right now.

Corporate IS has been whipsawed for years by changes to the technology landscape that promise bigger and better things if only you'll buy in to the latest trend. Remember computer-aided software engineering (CASE)? It was going to revolutionize development by letting you generate applications right from design specifications. CASE bombed because the tools basically didn't work, and corporate developers threw a lot of time and money down the drain.

Then came two-tier client/server. Fat clients and thin servers would put power in the hands of end users. Trouble was, fat clients acted, well, fat. Performance stopped a lot of applications dead in their tracks.

More recently, the Holy Grail has been three-tier client/server to relieve client congestion. We don't know how well that's going to work yet because everyone is too busy fussing over Java.

No computing discipline has been the subject of more failed paradigm shifts and broken promises than software development. Yet industry magazines still feature as many ads that tout improved programmer productivity as the *National Enquirer* has miracle diet plans. The simple fact is that writing good software is damnably hard, and no magic bullet exists.

I believe the initial euphoria over Java is over. Users are beginning to work with it and are finding that although Java is a remarkable technology, it's also complex, labor-intensive, slow and lacks a good aftermarket of programming tools. Not many Web browsers can handle it yet, and not many industries have compelling applications that require downloadable applets. And Java will soon be under pressure from good alternatives.

All this will shake out in time, and Java will be a significant development in the programming world. It may even be a — gulp — paradigm shift. But don't get too serious about it until a few of the pioneers have returned and had the arrows pulled from their backs.

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*
http://www.ultranet.com/~pgillin

EUREKA! WE'VE DISCOVERED THE INTERNET !!!

©96 COMPUTERWORLD HESNER

IS school survey focused on demand

I just got around to reading the Feb. 19 issue of *Computerworld* and noted a glaring irony in the article on IS schools ["IS Schools: Need improvement"]. It's too bad the folks who hacked the original version of Mosaic and (subsequently) populated Netscape went to Illinois/Urbana-Champaign, which shows up on the "fewest top skills offered" list. Presumably this leaves them ill-prepared for the brave new world of the Internet — the current state of which, in no small measure, derives from those efforts.

What's wrong with this picture?

William C. Mayse
McLean, Va.
chip@cambridge.com

Editor's note: The list of schools was not intended to be an assessment of overall quality, but rather a list of the programs offering training in the technology areas most in demand.

Idea likable, but execution lacking

Your recent feature ranking the industry's 25 top systems integrators shortchanged the companies listed and the clients they serve ["The good, the bad and the ugly," CW, Feb. 26].

Lumping together companies such as SHL Systemhouse and EDS with largely product-oriented companies such as Vanstar and Micro-Age rendered the survey results useless. Additionally, many of the survey's 12 questions were worded in a way that handicapped companies such as SHL that specialize in outsourcing and client/server migration.

One case in point: A question that prompted respondents on the types of services they received from integrators offered choices such as system design, application development and, incredibly, installation and user support. We don't know of many computer services firms that fail to offer installation. Far fewer offer client/server outsourcing, and *Computerworld*'s survey worked against those that do because it did not offer such services as a choice for respondents.

The idea of a Top 25 ranking was sound. Unfortunately, your execution of the process was lacking.

Greg Jacobsen
Executive vice president of business strategy and marketing
SHL Systemhouse, Inc.
Englewood, Colo.
gjacobsen@shl.com

Hey, don't forget good old OS/2

There is an error in your table "Stacking up" on the Intel line with the x86 chips ["IBM cans OS/2 on PowerPC; platform seen as threatened," CW, Feb. 26]. You listed only DOS, Windows and Windows NT in the field of operating systems supported.

Need I remind you that OS/2 is still an extremely viable operating system for this platform? IBM may have canceled it for the PowerPC, but it's the best thing going for the Intel processors.

Scott Tietjen
West Haven, Conn.

Do the NT math

I was amazed to read in your article that Windows NT sold only 363,000 server units and 489,000 desktop units ["Unix, OS/2 hold their ground against NT," CW, Feb. 26].

Based on the wording in your article, Windows NT is not really gaining any ground compared with the awesome sales of Unix and OS/2. However, if you had included the Windows NT numbers in your graph, you would see that:

● Windows NT Server outsold every vendor of Unix and OS/2 servers and almost outsold all Unix vendors combined.

● Windows NT desktop outsold every Unix vendor in the desktop arena.

● Windows NT desktop volume was over half of all Unix vendors combined.

Comparing the data graphically provides a better picture of the stunning numbers detailed in your article: the 216% and 134% growth rates for NT. If NT continues on this roll, do the math.

Russ McClelland
Perot Systems Corp.
Irving, Texas
russmc@computek.net

The 2,000-year-old IS manager

Allan E. Alter

CW: Ladies and gentlemen, we have some remarkable news. Scientists have found a 2,000-year-old man who claims to be the world's oldest IS manager. We have brought him to *Computerworld*'s editorial offices for an interview. Sir? Sir?
Man: Huh? What is it? You from IBM?

He's seen it all, from Stone Age interfaces to the problem of zeroes in the date field.

CW: No.
Man: Too bad. I'm waiting for customer service to call me about a vacuum tube.

CW: Sir, when did you first become an information systems manager?
Man: It was — wait a minute — it was 2,107 years ago last Tuesday.

CW: That's remarkable! Computers weren't even invented then.
Man: Of course we had computers. They were just chiseled from rock. Talk about carpal tunnel syndrome! But they were very user-friendly. We even had lots of graphic user interfaces.

CW: You mean graphi*cal* user interfaces?
Man: No, *graphic* user interfaces. Users would walk up to the computer and yell, "Look, you stupid machine, I need a word processed, you rotten #&$^%#%@#$!!" Oh, it was graphic, all right. Users loved it. Relieved stress.

CW: Sir, there's a question on the minds of many IS managers today....
Man: Go ahead, ask. I was a consultant once. I'll tell you what I know whether I know it or not.

CW: IS managers today are worried about the year 2000. Systems may crash when the date field turns from 99 to 00. Could you shed some light on how you dealt with the problem?
Man: Hoo, boy, that's a toughie. I remember when I got my first job, right out of MIT....

CW: You mean the Massachusetts Institute of Technology?
Man: No, the Mesopotamia Institute of Technology. Anyway, this angel appears and tells us great tidings of joy and now it's year zero and we gotta throw out our calendars. Was that a pain in the neck!

CW: I can imagine the inconvenience.

Man: No, I mean it was a pain in the neck. You ever try to throw out a calendar chiseled in stone? We could see this year zero stuff was a big, big problem.

CW: Why?
Man: Who ever heard of a zero? We knew I's and II's and V's and X's, but we had never, ever seen a zero. What's a zero? Nothing, right? How do you compute nothing and get any productivity from your IS department? Try explaining that to your chief financial officer.

CW: What did you do?
Man: Well, we brought in a consultant from Peat Bogwick. She said we had just one choice: We had to convert our files. So we picked up all our I's and V's and X's — boy, were they heavy — and threw them over a cliff. When the IS auditors got to the bottom, guess what they found? They'd all been converted to nothing, just in time for year zero! Problem solved.

CW: Sir, I mean no disrespect, but I'm not sure that's a workable solution today.
Man: What's the matter? You never heard of re-engineering?

Alter, a Computerworld *senior editor, Managing, still has a weakness for old Mel Brooks/Carl Reiner routines. He wishes everyone a happy April Fools' Day.*

RFPs: May they rest in peace

Michael Schrage

A painfully honest IS manager recently described the abysmally confused and inchoate request for proposals (RFP) her company released for a major systems project.

It's time to scrap the RFP, a sorry relic that persists only because of organizational inertia.

As she described it, the RFP was less a carefully designed requirements wish list than a desperate cry for help.

Even more pathetic than the RFP itself was the cockeyed responses it inspired from some of the biggest systems integrators in the business. Instead of using this disaster of an RFP as a diagnostic tool to help discern the real problems/opportunities, a couple of the integrators were prepared to bid on a contract that the client itself knew made no sense. And we wonder why projects are overdue and overbudget?

Unfortunately, RFP vignettes from hell such as these have the odor of familiarity. I don't think there has been any serious study to test whether there is a positive correlation between well-crafted RFPs and successful systems deployments.

However, it's likely that a nontrivial percentage of RFPs aren't worth the time and effort it took to draft them. At least one blue-chip systems integrator prefers not to deal with companies that issue RFPs. The integrator's experience indicates that RFPs complicate more than they clarify. The practical headaches outweigh the purported benefits.

Of course, it's not supposed to be that way. Theoretically, an RFP should be a terrific mechanism to focus the organization on what it really wants from a system. The self-discipline of gathering and listing requirements to get a contractor to understand priorities should boost the odds for a successful engagement. So what's the problem?

Round up the usual systems cliches. Most organizations don't know what they want built. If they really knew, they wouldn't need an RFP. No, what happens is that the RFP becomes a journey of self-discovery — a form of "MISanthropic" therapy where the systems organization can pretend it's listening while its clients can pretend they're giving serious thought to their requirements.

In reality, the problems with RFPs are the same as any requirements-driven development process. Far too much time is spent defining requirements. Far too little time is spent using prototypes and mock-ups to flush out how people really intend to use the systems they describe. Writing an RFP is more like filling out an application for a computer dating service than a vehicle for useful introspection. Besides, only the most general requirements survive the first upgrade of a newly deployed application.

The RFP is a sorry, anachronistic relic that persists more as a function of government practice and organizational inertia than any demonstrable value over time. Most organizations would be far better off scrapping their traditional RFP process and having the brains to do a quick-and-dirty prototype of their own and use that as the basis for inviting in the integrators.

Or, how about benchmarking against comparable systems that actually run in other organizations and using them as models?

Unfortunately, what we have today are IS people acting as pseudojournalists who seem more intent on describing functionality than building it. That is a recipe — excuse me, an RFP — for disaster.

Schrage is a research associate at the MIT Media Lab and author of No More Teams! *His Internet address is schrage@media.mit.edu.*

Servers & PCs

New spec may simplify remote management of PCs, 41

Users ask: What for art thou, Multia?

By Jaikumar Vijayan

It's a PC. It's a workstation. It's an X Window System terminal. It's ... Multia.

Sixteen months after it was launched, Digital Equipment Corp.'s highly acclaimed Multia multiclient platform remains a rather confusing product in search of a volume market.

Digital last week conceded that sales of Alpha-based versions of Multia were below expectations. The company released an Intel Corp. lineup last November.

But the company claimed it recently began picking up substantial orders, primarily for the Intel line, from major corporations worldwide.

Kudos from users

Several Multia users, analysts and distributors interviewed by *Computerworld* last week gave the product high marks for its leading-edge technology.

"Digital has an outstanding product in the Multia. What they need to do is package and market it better," said Rick Dakin, president of Beacon Technologies, a reseller in Longmont, Colo.

"It's a great concept, but a lot of

people are having trouble understanding what it is all about," agreed Steve Kleynhans, an analyst at Meta Group, Inc. in Caledon, Ontario.

Launched by Digital in November 1994, Multia is a unique hybrid client platform that combines the hardware and software features of a standard PC, a Windows NT workstation and an X terminal.

With Multia, systems administrators and users can access Windows, Windows NT, Unix, host-based and X terminal applications across the network from a single

client device (see chart). This kind of highly integrated, single-platform client is supposed to simplify systems administration, reduce costs and dramatically improve connectivity within an enterprise network.

At about $4,000, Multias typically cost $500 to $800 more than high-end PCs.

"Some people are astounded at the combination of functionality that is available in this one product. Others find it a challenging concept to understand simply because there is no comparable **Multia,** *page 41*

DEC's Multia

What it is	A hardware and software platform that combines features of a PC, Windows NT workstation and an X terminal.
What it does	Allows access to Windows, Windows NT, Unix, host-based and X-terminal applications across a network with a single device.
What it means	System administrators can manage hardware, software, network configuration options and network-based application access, which reduces time and cost.
	Users can transparently launch applications regardless of the physical location of the application, the platform it resides on or the logical connection of the network.

Briefs

Acorn gathers up NewsPad

Acorn Computer Group, the U.K. company that is developing the Network Computer specification for Oracle Corp., plans to launch the Acorn NewsPad, a tablet computer, by year's end. Acorn officials said the NewsPad will have a touch-sensitive screen, an on-screen keyboard for data input and special versions of common applications. Pricing wasn't available.

Dell pulls out notebook

Dell Computer Corp. has joined the long list of vendors who are releasing notebooks to support Intel

Corp.'s 133-MHz processor. The Latitude XPI notebook has 8M bytes of RAM, a 540M-byte hard disk drive, an 11.3-in. Super VGA active-matrix screen and a lithium ion battery. It costs $3,999.

Sony will plunge ahead

Undaunted by the slowdown in the U.S. PC market, **Sony Corp.** will enter it by this September. Sony officials said they didn't want to react to short-term fluctuations in the market. The company will start with me-too PCs and gradually expand their capabilities.

Sagister hits the market

Bull Information Systems Ltd., the state-owned French computer company, launched Sagister, a mainframe computer that runs IBM's AIX Unix operating system. It runs enterprisewide business applications. The entry-level configuration costs $712,500.

Sprint Business
Toll-Free Services give you more of what you need to succeed:

Free business-building tools.

But call now.

1-800-743-TOOLS
www.sprint.com/toll-free

Spec offers better support for remote PC management

By Bob Francis

Vendors are beginning to close ranks around a Desktop Management Task Force standard that will help network managers support their far-flung PC users.

Compaq Computer Corp. will integrate the Desktop Management Task Force (DMTF) remote management specification into its desktop and server management utilities. It will eventually replace its own specification, company officials said last week.

Product completed

Compaq set up its own desktop specification, called Intelligent Manageability, last year.

That is because the DMTF's first offering lacked support for remote management, a key need for Compaq's corporate customers, Compaq officials said.

Now that the DMTF has finished its next-generation Desktop Management Interface (DMI) and gotten support from the major operating systems vendors, Compaq will phase in the

---

New features

Desktop Management Interface 2.0 features remote desktop management and supports major operating systems from Microsoft, IBM, Novell, Inc., Sun Microsystems, Inc. and SCO, Inc.

---

new specification.

With DMI 2.0, corporate network managers could use a network utility package such as Symantec Corp.'s Norton Administrator Suite to gather information on disk drives, software and other components from networked and remote PCs.

Paul Ruben, group product manager for systems management at Compaq, said the company will add manageability features that exceed the DMI spec.

Users should see more benefit from a remote management specification than from the previous incarnation of DMI, said Joseph Ferlazzo, an analyst at Technology Business Research, Inc. in

Hampton, N.H.

"This will eventually allow network managers to remotely support desktop users. It's become a necessity in the business world," he said.

Vendor cooperation

Support from operating systems vendors for the DMI specification had previously been weak, but recently all the major desktop vendors pledged to add DMI support in upcoming versions of their operating systems.

Microsoft Corp. will add DMI 1.1 support to Windows 95 in July and the new specification, DMI 2.0, at a later date.

Microsoft will also add DMI support in Windows NT, said Michael Emanuel, product manager in the systems management group at Microsoft.

Multia system confuses users

product to pigeonhole it with," said Denny Lane, director of strategic alliances at Digital.

"It's kind of like a binary equation — either the light goes on and the user says, 'I get it. I know what the product is about,' or it doesn't go on at all," he said.

Easy to use

"The product is very easy to work with and very flexible," said Jeff Downs, senior project leader at IDX Systems Corp. in Burlington, Vt.

IDX manufactures clinical imaging systems and has used Alpha-based Multia systems to let users access X terminal-based viewing applications.

But IDX is porting the same applications on to the Internet, which means users soon can access them by using any hardware

Multiclient platforms

platform that has a browser.

As a result, IDX is unlikely to purchase any more Multias, Downs said.

"I like the concept that the application and the environment can be configured in a centralized location," said a user at a major bank in Pittsburgh. But there are some minor issues related to applications that run under Windows NT that need to be worked out, said the user, who requested anonymity and wouldn't identify the issues.

Digital isn't releasing sales figures for the Multia, but company officials said its installation base has been rapidly widening since its launch of the Intel-based systems.

Among the corporations that Digital lists as Multia customers are Citgo Corp., US West, Inc., AlliedSignal, Inc., NASA's White Sands Test Facility and Bell Canada.

SNAPSHOT

Midrange vendors' competition during the next six months

Vendor	Position	Comment
AT&T GIS	=	Releasing strong new products; facing company uncertainty
Compaq	+	Getting into small-scale markets
Data General	=	Transitioning to Intel-based servers
Digital	+	Strong Unix market and rapid high-end growth
Hewlett-Packard	+	Strong Unix and MPE markets
IBM	−	RS/6000 SMP needs boosting; product strategies are causing problems
Motorola	−	Unproven system strategies
Sequent	=	Strong sales; products improving steadily
Silicon Graphics	=	Rapid server growth
Sun	=	UltraSPARC servers will make an impact
Tandem	=	Fight with high-availability systems will intensify
Unisys	−	Strong integration strategy but hardware lags

+ Market advantage   − Market disadvantage   = Market neutrality

Source: International Data Corp., Framingham, Mass.

New Products

FWB, Inc. has introduced HSM ToolKit, a hierarchical storage management package for the Macintosh.

According to the Menlo Park, Calif., company, HSM ToolKit was designed to extend the capacity of hard disk drives by migrating unused files to secondary storage.

HSM ToolKit leaves an alias file as a pointer, so archived files can be retrieved transparently.

HSM ToolKit identifies files for migration by tracking when files have been accessed, not just modified.

Users can configure which files are migrated by age or type.

HSM ToolKit works with Apple Computer, Inc. AppleShare networks and supports any Finder-mountable storage device.

HSM ToolKit costs $79.
▶ *FWB*
(415) 325-4392

Sony Electronics, Inc. has introduced DKC-1D1, a digital camera that lets users supply high-quality images to PCs.

According to the San Jose, Calif., company, the camera can store up to 140 images on a 10M-byte PCMCIA card by using JPEG compression. It weighs 26 ounces.

The DKC-1D1 also can connect directly to a PC through a built-in SCSI interface.

The DKC-1D1 has a built-in

flash and a macro zoom lens that magnifies 12 times its normal size. It lets users select manual or automatic focus and shutter speed.

The DKC-1D1 can archive images to Sony's portable minidisc data drive, which can store up to 1,000 digital images on one minidisc.

Pricing starts at $1,999.
▶ *Sony Electronics*
(408) 432-0190

Compuware Corp. has announced Conversion-Xpert software, which reformats and converts data among more than 60 file formats.

According to the Farmington Hills, Mich., company, Conversion-Xpert was designed for sites that move data between mainframe and client/server systems.

Pricing starts at $15,000.
▶ *Compuware*
(313) 737-7300

QMS, Inc. has rolled out the 2425 Print System, a production-level printer.

According to the Mobile, Ala., company, 2425 Print System is a 24 page/min. workgroup printer.

It offers printer-based page layout options, including booklet printing, thumbnail, duplexing, stapling and production-level document finishing. It has a 64-bit processor and controller software.

The 2425 Print System features 1,200- by 1,200 dot/in. printing, accommodates up to 128M bytes

of RAM and includes an Ethernet network interface. This interface supports connections to Macintosh, PC and Unix workstations.

The 2425 Print System includes support for Novell, Inc. NetWare IPX/SPX, IBM OS/2 LAN Manager/LANServer and Windows 3.1, Windows 95 and Windows NT.

Pricing for the 2425 Print System Starts at $5,499.
▶ *QMS*
(334) 633-4300

Product shorts

Software Partners/32, Inc. has rolled out StorageCenter, a storage management suite for Unix. It includes four integrated applications: Backup and Restore, Media Management, Archiving and Administration. It is available in Enterprise, Workgroup and Personal versions and supports Sun Microsystems, Inc. Solaris, Hewlett-Packard Co.'s HP-UX, IBM's AIX and Digital Equipment Corp.'s Unix. Pricing starts at $1,875. Software Partners/32, Topsfield, Mass. (508) 877-6409. ... Kingston Technology Corp. has announced 64M-byte and 256M-byte memory kits for Silicon Graphics, Inc. (SGI) Unix workstations. The memory kits work with SGI's R10000 system hardware, software and diagnostics. The 64M-byte memory kit costs $4,770, and the 256M-byte memory kit costs $17,465. Kingston Technology, Fountain Valley, Calif. (714) 435-2600.

when it comes to building intranets...

cabletron is

esse

Essentials include scalable, high-speed switches, an enterprise management platform and a true virtual networking solution.

Makes perfect sense when you think about it. After all, the Intranet is the Web server-based network within an organization that allows for seamless connectivity between multi-protocol, multi-vendor environments. Ushering in a whole new era of communication, the Intranet gives everyone quick access to voice, video, data and other resources they need to do a better job.

But none of this is possible without the right foundation. That's where Cabletron comes into play. Featuring high-speed switches; user-friendly management tools; the industry's only true virtual networking solution; and the world's largest service and support staff, Cabletron doesn't build just Intranets—we build a better way to do business.

Construction starts now. Call (603) 337-0901 to learn more about the essentials of the **intra**net and Cabletron Systems.

Or see us at Networld+Interop in Las Vegas on April 2nd! Booth 4459.

NETWORLD+INTEROP'96
Las Vegas-Nevada

The stuff **intra**nets are made of

CABLETRON
SYSTEMS
The Complete Networking Solution™

Corporate: 35 Industrial Way, Rochester, NH 03867 • Fax:(603)337-2211 • Internet: http://www.cabletron.com/

THE FUTURE OF
THE UNIX SYSTEM
IS IN GOOD HANDS.

IT'S EASIER
WITH SCO.

With SCO's long-term commitment to UNIX®, the future has never been in better hands. We're dedicated to partnering with industry-leading companies to provide exciting new opportunities. We've developed a new release of SCO® UnixWare® which delivers many features you've been asking for. In short, we're putting together the most powerful solutions in the history of UNIX.

We're developing solutions which will consolidate SCO OpenServer™ and SCO UnixWare into one high-volume UNIX operating system that will run on standard Intel® processor-based platforms. With an easy migration path for current customers.

This will give customers better access to corporate data and a wider choice of applications and development tools, and will allow faster development of new applications. Protecting their investments while ensuring their access to new technologies.

We'll then work to build a clear, evolutionary path to 64-bit networked computing integrating high-performance NetWare® services on Intel's next-generation 64-bit processor.

Contact us for a free blueprint of the future of the UNIX system and information on the products that can help you today.

1-800-818-2057, code goodA24.1
www.sco.com/ad/uw20

SCO

Software

Novell puts voice into the in-box

By Tim Ouellette

Novell, Inc. will begin dialing for users this spring by upgrading the telephony features in GroupWise.

The goal is to have the GroupWise messaging software treat voice messages as any other data type in its universal in-box, which would give users one place to go for all their communications.

"The issue of actually having a way of integrating voice and electronic mail is really critical," said Ivan Handler, a GroupWise consultant and user in Chicago. "It is not uncommon to see people with two or three separate Rolodexes, while soon they could have just one database for all contacts and could dial the phone from GroupWise."

Integrated communications

According to the plans Novell previewed at the recent Brainshare '96 in Salt Lake City, users will be able to listen to and forward voice messages; manage voice messages together with related electronic messages, documents and calendar tasks in GroupWise folders; and apply sorting and routing rules to the voice messages.

"The reason why we got into this is that we were looking downstream and realized that [voice and electronic] messaging is coming together," said Jae Pudewell, a GroupWise product line manager at Novell.

Novell currently offers Telephone Access Server (TAS), an add-on to GroupWise 4.1 that gives users access to E-mail and calendar information from a telephone outside the office. But by May, the Provo, Utah, firm will ship GroupWise Phone Access, which adds GroupWise client control of voice messages and the telephone itself.

Novell's messaging upgrade to GroupWise 4.x, called GroupWise XTD, will also incorporate the Phone Access features when it ships this summer.

Lotus Development Corp. provides similar groupware features with Phone Notes, a Notes add-on that lets users access their Notes databases and messages from a Touch-Tone telephone.

There are still hurdles to face such as price and proprietary telecommunications hardware.

Phone Access will incorporate the features of the TAS product, so prices, which haven't been announced, will likely go above the server's $9,995.

Intranet applets

D&B Software uses Java to target internal client/server browsers

By Julia King

Dun & Bradstreet Software last week one-upped its client/server competitors by announcing a series of enterprise software applets designed for use over corporate intranets.

So far, plenty of vendors have furnished World Wide Web browser access to applications. But D&B Software is among the first to extend functionality to the ever-expanding universe of intranet users.

The vendor's Requisitions applet, part of the SmartStream Web Series, will ship in May. The Java-based applet, developed in conjunction with Sun Microsystems, Inc., lets users execute a purchase request through a SmartStream system without having SmartStream client software on the desktop.

Another option

"It makes sense for managers to do purchase requisitions electronically, but you wouldn't deploy client software to every manager just to do that," said Jeff Scherb, chief technology manager at D&B Software.

"With a browser-based application, it's much easier and cheaper to extend access to casual users. You're not installing 50M or 100M bytes of software code on every client workstation," he explained.

Instead, the D&B Software applet resides on a server and can be downloaded on an as-needed basis by browser software, which is becoming ubiquitous at many large companies.

With D&B Software's Requisitions *applet, users don't need the full SmartStream software package for purchase requests*

This year, 35.8 million corporate PCs will have browser access to Internet or intranet resources, according to International Data Corp. in Framingham, Mass.

Houghton Mifflin Co., a $700 million publishing company and user of D&B Software's SmartStream, could save about $1,000 on each desktop that uses a browser instead of traditional SmartStream client software.

"It would be a significant savings. With a browser, you also wouldn't need the disk space and RAM that the client software requires," said Daire Starr, a financial systems project manager at Houghton Mifflin in Boston.

As a result, "we'd definitely like to use [the new applet] for casual users who do not need a complete SmartStream application on their PCs," Starr said.

Also last week, D&B Software announced a second application, SmartStream Assistant. It lets users access the vendor's help desk via the Internet. Customers who use the application can work interactively with D&B Software support personnel to solve software problems and download fixes. Previously, users tapped in to the company's help desk via dial-up modem lines.

D&B Software in January announced another Internet-related product, SmartStream Decision Support. Using this tool, a pricing report, for example, can be quickly generated and uploaded to an intranet-based Web page for viewing by remote salespeople around the world.

Applications in the SmartStream Web Series will cost about $50 per client.

Import/export blues hit users

Review

By Esther Schindler

In the real world, people don't necessarily use the same applications as their co-workers. But we all need to exchange data with one another: The development department writes documentation in WordPerfect, but marketing uses Microsoft Word and yet another department may use an OS/2-based program.

To get around this, every popular word processor claims to import and export data in other formats. But after putting feature sets from several rival applications under a microscope, I learned that you might not be happy with the results.

This article won't recommend which word processor to buy — you've already done that. The goal here is to help you live better with the one you already own.

I created documents by using the latest versions of several popular word processors: Microsoft Corp.'s Word

SUSAN KWAS

Norton Tools tackles Windows NT

Early users like file management, diagnostic tools in graphical format

By Lisa Picarille

Symantec Corp. this week is expected to take the wraps off the Windows NT version of its Norton Tools family of software utili-ties. Like the version for Microsoft Corp.'s Windows 95, the NT version of Norton Tools offers antivirus protection, file man-agement and the ability to monitor key sys-tem resources of the operating system — in this case, Microsoft's Windows NT.

Users said Norton NT Tools offers a more robust tool set compared with what is built into NT. Microsoft built in to Windows 95 many of the same features that are in the Windows 95 version of Norton Tools.

"NT's diagnostic tools are buried. They are harder to find and harder to manipu-late," said Richard Favara, president of The Expedition Group Ltd., a North Hills, Calif., network and systems integrator that beta-tested Norton NT Tools and NT 4.0. Con-versely, "Symantec puts them right up on the screen and makes them easy to use," he said.

Norton NT Tools in-cludes Norton Antivirus, which can detect and eliminate viruses. Because Windows NT is often used as a file server, NT Tools also detects and removes viruses that can infect client PCs that run DOS, Windows 3.x, Windows 95 and NT.

Utilities

Drag to the 'net

The $49.95 product also offers new file management facilities that enable users to browse unmapped network resources, compress and decompress files and format and copy floppy disks. It also lets users drag and drop information to and from file transfer protocol (FTP) Internet sites directly from within Norton File Manager, perform file and application searches, configure systems and synchronize folders.

Early users of Norton NT Tools lauded the file management features.

"In Windows 95, file manager is a real basic-bones feature, but Norton NT Tools allows you to have several different views and lets you do a host of functions includ-ing zip and unzip files," Favara said. "You can also get an FTP site listed as if it were a drive. This is very much like what Micro-soft's Network Neighborhood does."

Network Neighborhood is an icon on the Windows 95 desktop that lets users see and set up drives, peripherals and resources that are connected to their computers.

Call the doctor

Norton NT Tools includes Norton System Doctor for continuous monitoring of disk drives, memory, CPU and network perfor-mance. The program runs in the back-ground and can be set up to notify users when the system reaches critical levels.

In addition, a System Information feature provides graphical representations of infor-mation about memory, disks, network con-nections and multimedia devices.

Beta-tester Jason Leznek, a business sys-tems analyst at a large Midwest telemarket-ing firm, said System Information was par-ticularly useful in helping users see where they are having systems problems.

"You get a graphical picture of every-thing on your system," Leznek said. "Be-fore, you would tell your users that they shouldn't have games on the system, but now you can show them why.

"You can go to their machine and say, 'Look, you have a 2G-byte drive with only 500M bytes of free RAM and 60% of what is free are games.' When you can show that to people instantly in the form of a pie chart, it's a much more powerful explanation."

New Products

Integralis, Inc. has introduced Mime-Sweeper 2.1 for Windows NT, an antivirus product.

According to the Kirkland, Wash., company, MimeSweeper 2.1 helps administrators prevent viruses from entering their networks from the Internet and external electronic-mail services. It behaves like a Microsoft Mail E-mail router that decodes incoming mail and scans all internal mail traffic between Microsoft Mail post offices for viruses. If it finds undesirable files, it quarantines the message and notifies the network administrator.

MimeSweeper 2.1 for NT scans both incoming and outgoing E-mail and supports most virus scanning products.

Pricing for MimeSweeper 2.1 for NT starts at $999 for 25 users.
► *Integralis*
(206) 889-4724

Linguistic Technology Corp. has introduced English Wizard 2.0, PC software that translates plain English into SQL.

According to the Acton, Mass., company, the software lets users translate questions with percentages, "both/and" questions, "but not" questions and questions containing the word "exclusively." For example, a user can translate the question "What percentage of customers buy both produce and fish each time they shop?" into SQL.

English Wizard 2.0 enables any Open Database Connectivity-compliant reporting tool. It costs $99.
► *Linguistic Technology*
(508) 266-1818

Precise Software Solutions, Inc. has announced Inspect/SQL and Analyze/SQL, two administrative packages for Oracle Corp. sites.

According to the Braintree, Mass., company, Inspect/SQL lets database administrators and application developers diagnose Oracle performance problems graphically. Analyze/SQL lets users improve system performance by modeling SQL statements to see how they will perform, without actually running them.

Pricing depends on the platform. Inspect/SQL starts at $5,000; Analyze/SQL starts at $5,500.
► *Precise Software Solutions*
(617) 380-3300

Three D Graphics, Inc. has announced Compadre, a support product for Microsoft Corp.'s PowerPoint for Windows 95.

According to the Los Angeles company, Compadre is an assortment of images on CD-ROM that lets users enhance Power-Point presentations. It features a textured fill option, 35 music clips, more than 90 sound effects, presentation design templates, video clips and multimedia buttons.

Compadre also has a Windows 95 Setup Wizard that creates shortcuts to all the CD elements in convenient places within a PowerPoint folder.

Compadre costs $50. A demo version can be downloaded from http://www.threedgraphics.com/compadre.
► *Three D Graphics*
(310) 459-7949

Vantive Corp. has announced Vantive Enterprise 5.0, an enterprise client/server customer interaction product.

According to the Mountain View, Calif., company, Vantive Enterprise 5.0 includes enhancements that streamline Internet access to a company's customer support operation. It features a field service application that tracks both parts and personnel involved in support calls.

The new Vantive applications support Informix, Inc. databases. Pricing starts at $30,000 per application server and $2,500 per concurrent user.
► *Vantive*
(415) 691-1500

THE→ BUILDERS┐

"WHEN WE WANTED TO TAKE THE RISK OUT OF RISK MANAGEMENT... WE CALLED THE BUILDERS."

Alan R. Josefsek, Managing Director, Information Systems Div., Sedgwick James, Inc.

PepsiCo, Inc.'s losses from accident, theft, and seasonal risks come right off the bottom line. And that means PepsiCo subsidiaries and divisions like the Pepsi-Cola Company, Frito-Lay, Taco Bell, KFC, and Pizza Hut, have got to get a handle on these risks to be able to create real-world business plans. How do they do it? With a new risk management system called INFORM™ for Windows™ developed by Sedgwick, the world's second largest insurance broker.

Every week, Sedgwick loads the latest casualty claims data from the nation's leading insurance carriers into a FOCUS database resident on its RS/6000 distributed network. The database is then accessed via the PepsiCo wide area network by more than fifty desktops and remote laptops equipped with the INFORM risk management system. Both the RS/6000 and local PC's are enabled with Information Builders' EDA/SQL middleware providing PepsiCo managers

and business analysts with transparent data access from a variety of hardware/software configurations.

The INFORM risk management system combines the numbers crunching power of FOCUS with the graphical analysis capabilities of FOCUS/EIS for Windows. The result... PepsiCo managers at all levels can pinpoint critical trends, drill-down for detailed back-up information, identify potential problems, and plan intelligently to minimize risks and maximize profits.

The INFORM risk management system is just one of thousands of examples of how Information Builders has part-nered with the world's leading corporations and government agencies to create enterprise-level decision support systems. To find out how Information Builders' technology and services can help your organization, call 800-969-INFO.

Information Builders

▶ 800-969-INFO
In Canada Call 416-364-2760

Software

Import/export

7.0 for Windows 95, Lotus Development Corp.'s WordPro for Windows, Corel Corp.'s WordPerfect 6.1 for Windows (with some testing of the DOS version) and DeScribe, Inc.'s DeScribe Enterprise Edition for OS/2. The Windows 3.x packages were tested in WinOS2 under OS/2 Warp Connect. All packages were installed with "ordinary" options, with an eye toward including extra import/export filters. DeScribe, for instance, installs a subset of its filters only by default.

Test results

Each document was exported to the other document formats. In some cases, I also exported to the alleged Rosetta stone: Rich Text Format (RTF). I read each document, in each format, into every word processor and judged the results.

They all stink.

Any of the word processors can import a simple memo or letter. But as your documents become more complex, you will lose more of your work in the translation.

The following guidelines may steer you past some of the harsh realities of intermingling word processors:

● DeScribe is the only word processor that warns you that you might lose data. This may not make you feel better, but at least your eyes will be open.

● Word 7.0 won't import Lotus AmiPro or WordPro documents. You'll need to save them in another format. Don't use WordPerfect 6.1 as the intermediary format, though. Word 7.0 indicated that the WordPro document, which was saved in WordPerfect 6.1 format, was corrupt.

● If you want to watch your word processor crash or produce garbage, using WordPerfect 6.1 as the intermediary is a good way to do it. Word 7.0 reported an "illegal operation" when it tried to import a DeScribe document that had been saved as a WordPerfect 6.1 file. WordPro crashed regularly on documents saved in Word 7.0 formats. DeScribe handled errors with comparative grace, but it wasn't perfect, either.

● None of the other word processors read DeScribe's native format. DeScribe has more import and export filters than the other programs, but you will need to rely on them often.

● If you need to exchange data between WordPerfect 6.1 and Microsoft Word, let Word 7.0 import and export WordPerfect 6.1 files. It does a better job.

● WordPerfect 6.1's Windows and DOS versions exchange data quite well.

● For documents that will be exchanged of-

Word processors

ten, eliminate secondary text frames. Use one base document frame. None of the word processors handled frames well; most lost the data completely.

● Expect to regenerate or reimport your graphics.

● Your equations are history. In testing, Word 7.0 did import a WordPro equation, but it turned into a different equation.

● Accept that your carefully chosen fonts and layouts will need to be carefully chosen again.

● Word 7.0 doesn't make it easy to save in earlier Word formats such as Word 5.0. Actually, I'm not sure if it's possible.

● Most of the word processors include superfluous data when they export files. You will find extra tabs, line formatting and other information in the documents you examine, and you may have to clean them out.

Four files were used in the tests. The following is a typical case:

File 1 was a complex newsletter created in WordPerfect 6.1 for Windows. The file contained a .wpg graphic, a secondary frame (generated table of contents), colored text, stylesheet, end note and equation. It also contained a table of numbers with joined cells at the top and a gray background.

DeScribe importing:

● Word 7.0 format. Lost graphics, second-

ary frames and most styles. Kept most text formatting. Lost the equation.

● AmiPro format. Kept the equation as a text description. Lost joined cells in table, but kept data. Lost graphics and secondary frames. Stylesheet remained intact.

● WordPerfect 6.1 format. Graphics wouldn't import, but most text came in. Stylesheet remained intact, but secondary frame was gone. Lost the equation.

WordPro importing:

● AmiPro. Got 77 pages of page headers — that's all.

● WordPerfect 6.1. Ran into General Protection Fault (GPF) every time.

● Word 7.0 for Windows. Got most of the text in one import. Met with GPF every other time.

Word 7.0 for Windows 95 importing:

● AmiPro. Didn't recognize this format.

● Word for Windows. Brought in first article. Lost graphics and secondary frame. Lost stylesheet. Imported table data, but lost the joined cells. Lost the equation.

● WordPerfect 6.1. Loaded graphics, colored text, table and its background. Lost second article. Layout seemed reorganized. Lost the equation.

Schindler is a writer and reviewer at The Groovy Corp. in Scottsdale, Ariz.

David Wright

It's RAD, man: Getting software out on time

Rapid application development (RAD) is a buzzword for a set of techniques used to deploy software within compressed time frames.

Instead of the software "popping out" at the end of its development cycle, the software evolves around a core set of deliverables that are deployed in chunks in order of importance.

The short time frame contributes to an atmosphere of trust and a more solid business relationship with the customer. In order to make this happen, however, you need to implement a number of techniques.

The software delivery date agreed on with the customer should be set in stone and considered a "drop dead" date for all involved.

This will force the development team and client to focus on what's really important and resist the tendency to embellish the product as it evolves.

Timeboxing also forces tradeoffs and compromises, which are necessary with any fast-moving project.

Within this timebox, a repeating cycle of design, construction and testing are completed with the customer, with each succeeding cycle bringing the product closer to its final form.

Ready to commit

The customer should be heavily involved in detecting design flaws early on. Because this won't happen by itself, you must secure the commitment of the customer's decision-makers to a minimum number of hours for testing and refining the product. You must be careful on this point because customers often agree to almost anything to get you to start coding. So when negotiating these commitments, you must determine whether the client can meet them. Schedule regular meetings with the client in advance solely for these purposes.

The number of client members on your team should also be relatively small to minimize the time needed to make quick decisions. Make sure they possess an appropriate mix of experience and knowledge that fully represents the client's requirement.

The software project manager also must be able to take calculated risks because there often isn't time to make fully informed decisions. This is where the experience of the project manager and the quality of the team come into play. Soliciting input and making a final decision, if a decision hasn't been discussed during team analysis and debate, is critical.

Because RAD can be misunderstood and abused as a shortcut to deploying software, you should take pains to follow a development methodology using proven software engineering principles. Business emergencies that translate into RAD projects often lack the rigor needed to deliver a quality product. RAD is not an excuse for hacking out products helterskelter.

Also, don't let the scope of the project increase without negotiating a new delivery date that is realistic.

Last, don't worry if at first RAD feels kind of chaotic. It should feel chaotic because it is. After you've evolved a tight-knit development team and hit paydirt, however, you'll discover that RAD is really not any more chaotic than the normal hectic pace you're used to. It is a different type of apparent disorder that produces quality software and better customer relations. A little planning with rigorous enforcement of these principles will help make RAD standard repertoire in your organization.

Don't worry if at first RAD feels kind of chaotic. It should feel chaotic because it is.... However, you'll discover that RAD is really not any more chaotic than the normal hectic pace you're used to.

Wright is data administrator at the Christian Broadcasting Network in Virginia Beach, Va. His E-mail address is david.wright@cbn.org

Tools ease migration to object-based design

By Frank Hayes

How do you get from conventional software development to object-oriented design? That's the problem facing an increasing number of corporate information systems shops as they begin serious client/server development.

Large IS shops traditionally have used programming languages such as Cobol and PL/1, along with modeling techniques such as entity-relationship diagrams, for database design. But in the future, many developers say they will also need object-oriented capabilities to create complex client/server applications.

"We realize objects can't do everything, but they're going to do an awful lot, eventually," said Douglas Stone, a computer scientist at Northeast Utilities, Inc. in Berlin, Conn. "We're looking for tools that will bridge that gap."

Easy does it

To help developers ease into object-oriented analysis and design, vendors such as Sterling Software, Inc. and Bachman Information Systems, Inc. are merging traditional business modeling capabilities into object-oriented development tools.

Atlanta-based Sterling last week began shipping Key:Workgroup 1.5. The new version of the object-oriented tool set, which starts at $25,000 for four developers, adds entity-relationship, workflow and dataflow diagraming.

Bachman in Burlington, Mass., which made its name with database design and construction tools such as DBA, is merging with object-oriented design vendor Cadre Technologies, Inc. in Providence, R.I. The combined company, known as Cayenne Software, plans to offer a more IS-oriented version of Cadre's ObjectTeam analysis and design tool set. ObjectTeam Enterprise, which will cost $4,890 per developer, is slated to ship by June.

The shift to an object-oriented approach for business development is long overdue, said David Sharon, president of CASE Associates, Inc. in Clackamas, Ore. "It's a natural evolution, but many IS professionals have been deeply rooted in their on-the-job experiences" with traditional development, he said.

Indeed, many IS shops are concerned that their staffs won't be able to make the transition to object-oriented development and tools.

"People are telling us that 50% of the Cobol programmers in the world will not make the paradigm shift," said William Lamb, a senior analyst at Rochester Gas & Electric Co. in Rochester, N.Y. "That's not the tool I'm looking for if 50% of the programmers around here are going to be rendered useless."

That's why tool sets that can help developers make the transition are crucial, Stone said. "We need something that will let us work up to that, so we can do entity-relationship diagrams in the right place and build object models in the right place. We have to move over in a coordinated fashion," he said.

Tools triumph

Average number of model-driven design tools used for client/server development

- 1993: 2.7
- 1994: 4.5
- 1995: 5.2
- 1996: 6*

Base: 309 Fortune 1,000 client/server IS managers
*Projected

Source: Sentry Market Research, Inc., Westboro, Mass.

Kit controls output

Developers of client/server applications can add output management features with help from **Dazel Corp.** in Austin, Texas. A tool kit helps integrate the ability to access and control output resources such as printers, faxes, electronic mail and paging services. Dazel's server and client interface software lets users send data such as a memo to multiple destinations throughout a network. Dazel supports development with languages such as C and C++, tools such as Powersoft Corp.'s PowerBuilder and production client/server applications from vendors such as Hyperion Software Corp., Oracle Corp., PeopleSoft, Inc. and SAP AG. A developer's license costs $500 for Unix and $200 for Windows.

Versant forms alliance

Versant Object Technology, Inc. in Menlo Park, Calif., said it has assembled an alliance to create a business-transaction infrastructure for the World Wide Web. The alliance, which will focus on new Web-based applications and retrofitting legacy applications, includes Smalltalk vendor ParcPlace-Digitalk, Inc. in Sunnyvale, Calif.; design firm Art Technology Group, Inc. in Boston; data management vendor BMC Software, Inc. in Houston; text search vendor HNC Software, Inc. in San Diego; object communication vendors Iona Technologies Ltd. in Westboro, Mass., Expersoft Corp. in San Diego and Post-Modern Computing Technologies, Inc. in Mountain View, Calif.; object relational database vendor Ontos, Inc. in Lowell, Mass.; and C++ library vendors Rogue Wave Software, Inc. in Corvallis, Ore., and Ilog, Inc. in Mountain View, Calif.

IT'S LIKE INVESTING IN BUSINESS SOFTWARE. IF YOU'RE SMART YOU ONLY DO IT ONCE.

Your stomach is in your throat. Your heart is in your ears. One thing is certain. You don't want to have to purchase business software ever again.

That's why we designed Lawson Software with the flexibility to run on virtually any client/server platform. And it's why we offer an open licensing arrangement that lets you migrate through technological changes and software upgrades without additional licensing fees.

Call Lawson Software at 1-800-477-1357 for accounting, human resources, distribution and materials management applications. Because you don't really want to do this again, do you?

LAWSON Software ™ THE LAST TIME YOU'LL CHANGE **SOFTWARE COMPANIES.**

How did we get a network this big into a box this small?

The Enterprise Network

Keeping the bandwidth beast in check

By Bob Wallace

Bandwidth busting isn't about policing the network industry.

Bandwidth busting is essentially making the most of LAN and WAN bandwidth without spending lots of money or letting network performance slip.

Some of the most popular techniques include trading in low-speed private-line networks for higher-speed frame-relay WANs, replacing shared-capacity LANs with switches and using Integrated Services Digital Network (ISDN), rather than dial-up modems, for remote access.

Although bandwidth busting can mean making an initial investment in equipment and sometimes software, more often than not the new networking scheme covers those costs and more in as little as several months, according to analysts.

And when it comes to saving money on the WAN side of the house, nothing is hotter than frame relay.

That's because many large and medium-size companies still have slow private-line data networks. Frame relay differs from those networks in that user data is sent over the carrier's public data network, which is far less expensive.

"Moving from private lines to frame relay typically saves users 30% to 40% on WAN charges," said Christine Heckart, an analyst at TeleChoice, Inc., a Verona, N.J., consultancy that specializes in carrier data services. "And users can boost network performance at the same time."

Dan Gonos, a telecom manager at Domino's Pizza, Inc. in Ann Arbor, Mich., moved six of Domino's administrative sites from 9.6K bit/sec. private lines to 256K bit/sec. frame-relay connections.

Gonos is saving his company roughly $25,000 per year with the AT&T Corp. frame-relay links. He has also increased by a factor of about 28 the bandwidth those sites now have.

"Network performance is excellent," Gonos said. "The bandwidth boost seems like the difference between a horse and buggy and a jet airplane."

But savings with frame relay don't stop there.

A growing list of vendors offer products that let frame-relay users send voice traffic over those networks, theoretically for free, once users buy the proper equipment.

Another option for users is to buy frame-relay access devices. These reduce frame-relay costs by letting users run voice, data, LAN and fax traffic over one connection.

Bandwidth busting conventionally applies only to WAN capacity, but scads of users are moving to switching to bust LAN bandwidth. Switches let users replace shared capacity with dedicated pipes.

Whereas a shared-capacity LAN forces 100 users to battle for the same slice of bandwidth, switching breaks them up into five- or 10-user chunks, easing network strain and boosting performance.

Switching also provides these users with dedicated access from the switch to centralized computing resources such as servers.

That was the case at Lehigh Valley Hospital, a regional hospital in Allentown, Pa., which increased performance and reaped other key benefits by moving from Ethernet hubs to Ethernet switches from UB Networks, Inc.

Streamlined management

"That enabled us to consolidate our servers from 20 to four, which, in turn, made server management considerably easier," said Dennis Kuhns, manager of network service at the hospital.

"And we know we've saved big when it comes to software licensing by moving from a 2,000-user license to a 500-user license [for the servers]."

Shared bandwidth wasn't enough for the hospital because it wanted to distribute software from its centralized master control center. "That's not a problem with Ethernet switching, which means we save on ongoing network administration," Kuhns said.

Tying remote users into those souped-up LANs requires bandwidth busting, too. Frame relay is an option here, and so is ISDN. Although ISDN has limitations — it isn't offered everywhere and requires a dedicated line — its bandwidth makes it viable for some users.

"We've looked at both, and although frame-relay service and equipment pricing is falling fast, ISDN is cheaper today," said Bill Horst, chief at the General Services Administration's communications branch in Philadelphia. "It has the price and the flexibility we need to support remote sites."

Climbing the bandwidth ladder

45M bit/sec.
The most widely used ATM speed

1.544M bit/sec.
(T1) – The common top frame-relay speed

128K bit/sec.
You get this speed if you combine two ISDN channels to form one

64K bit/sec.
You can get this from one channel on an ISDN line

56K bit/sec.
Frame-relay data service starts here

28.8K bit/sec.
The top speed of most analog dial-up modems

2.4K bit/sec. to 9.6K bit/sec.
Most old private-line nets run at this speed

Utility busts bandwidth by becoming a carrier

Northeast Utilities' John Boyd *says the company's new joint fiber-optic network venture will allow it to slash bandwidth costs*

The signing of the Telecommunications Deregulation and Reform law, which opens up the industry to widespread competition, lit a lightbulb at Northeast Utilities.

The Berlin, Conn., electric company quickly joined forces with Central Maine Power to bust bandwidth by building the New England Optical Network (NEON), a 410-mile fiber-optic network.

Northeast Utilities can use NEON revenue to cut its bandwidth costs. And other users can cut their wide-area network costs by buying NEON data services, which are cheaper than those from established carriers.

These firms have so-called rights-of-way that let them lay fiber along their power lines, pipelines and railroad tracks, and then become carriers.

"We think we have everything it takes to be successful in this venture, especially given our background in implementing advanced [WAN] technologies like frame relay and ATM," said John Boyd, chief networking technologist at Northeast Utilities. "There's serious money to be made in this business." — *Bob Wallace*

Closer Look
Bandwidth busting

New Products

CheckPoint Software Technologies Ltd. has introduced CheckPoint FireWall-1 for Windows NT.

According to the San Francisco company, the product is a network firewall that supports virtual private networking, user authentication and client authentication.

It also lets Microsoft Corp. Windows NT network managers configure and manage multiple firewalls throughout the enterprise from one centralized management station.

CheckPoint FireWall-1 for Windows NT includes Microsoft's NT and Windows 95 interfaces. It lets systems administrators install, configure and manage the firewall either locally through an NT interface or remotely through a Windows 95 interface. It supports more than 100 applications, services and protocols. Administrators can customize the firewall to incorporate new and in-house applications.

Pricing will be announced in June.
▶ *CheckPoint Software Technologies*
(415) 562-0400

Wall Data, Inc. has introduced Rumba 2.1 for TCP/IP Networks.

According to the Kirkland, Wash., company, Rumba 2.1 is an integrated suite of TCP/IP and Internet client applications for Windows business users who require reliable access to information through the Internet and corporate intranets. It provides a common Microsoft Corp. Office-compatible interface on the desktop for all types of host connections over TCP/IP.

It features host and Internet access tools, electronic mail, file and printer sharing, network utilities, remote access and communication protocols.

Rumba 2.1 for TCP/IP Networks costs $149.
▶ *Wall Data*
(206) 814-9255

Compex, Inc. has introduced Compex MicroHub 100/TX, an eight-port hub, and Compex FreedomLine 100/TX PCI, a network adapter card.

According to the Anaheim, Calif., company, MicroHub 100/TX supports eight station ports that can be used for clients, servers or downlinked hubs.

It includes an additional designated uplink port that allows cascading of up to 30 meters for a total distance of 230 meters between nodes.

FreedomLine 100/TX PCI is an adapter card that operates at full duplex mode and automatically switches speed between 10M bit/sec. and 100M bit/sec., depending on the network technology.

Compex MicroHub 100/TX costs $999. Compex FreedomLine 100/TX PCI costs $125.
▶ *Compex*
(714) 630-7302

FSA Corp. has introduced CipherLink, a network encryption system.

According to the Calgary, Alberta, company, CipherLink can be installed on each network computer and transparently encrypts traffic on Windows, Macintosh and Unix networks.

It requires only software installation setup and doesn't need a dedicated key management server.

For sites where authentication is needed, the system supports user name/password challenges, one-time passwords, smart cards and encryption cards.

CipherLink costs $99 per machine.
▶ *FSA*
(403) 264-4822

Ibex Technologies, Inc. has announced FactsLine for Microsoft Corp.'s Windows NT: RightFax Edition, fax-on-demand technology.

According to the El Dorado Hills, Calif., company, the product integrates with RightFax, Inc.'s RightFax to let servers share computing resources, voice/fax boards, telephone lines and fax image libraries. It has robust reporting, monitoring and cataloging features along with voice menuing and fax document management.

FactsLine for NT: RightFax Edition requires an Intel Corp. 90-MHz Pentium running Windows NT 3.51 or later and a minimum of 32M bytes of RAM. It costs $2,500 for two incoming voice lines. Pricing for fax server software starts at $1,495.
▶ *Ibex Technologies*
(916) 939-8888

The new HP LaserJet 5Si MX network printer answers your users' questions so you won't have to.

Don't spend your day fielding questions about network printers. Instead, take a look at the HP LaserJet 5Si MX. With enhanced user software, inquiries such as "Is the printer out of toner? Out of paper?" or "Is it busy with another job?" all get answered immediately. Right from your users' desktops. Any print job – from the very simple to the very complex – can be tracked, managed, cancelled, or sent to a different printer quickly and easily. And the best thing is that you'll never hear about it. So take the intelligently simple approach to network printing. It may just free enough of your time for other important matters, starting with lunch.

HP Network Printers
Just what you had in mind.

HEWLETT® PACKARD

A wireless LAN landslide

Vertical markets cheer low price of links

By Mindy Blodgett

At Wake Forest University, a wireless LAN means students can plug in to the library card catalog from the student union.

For the American Red Cross, wireless LAN technology eases the cost and fuss of setting up the temporary warehouses needed to stock emergency disaster services operations. These warehouses are mobilized in the wake of deadly hurricanes, floods and earthquakes.

These are just two examples of how wireless LANs work for users. The wireless LAN market is still largely confined to vertical industries such as retail, health care and warehouses, but it's growing (see chart).

Behind the growth is recognition of how useful wireless LANs are and price cuts, analysts said.

"Office workers are starting to realize that it is really useful to be able to access the network from a conference room, from anywhere in their building or between buildings when the need strikes them," said Craig Mathias, an analyst at Farpoint Group in Ashland, Mass.

Mathias said wireless LAN nodes have dropped in price in the past year, from $700 to about $400 each. Wireless access points, which connect the user to the network backbone, cost about $1,200 each, down from more than $2,000 a year ago, he said.

Mathias said few

users will ever install wireless LANs as the sole corporate network because of the LANs' slow data rate.

But he said more users are turning to the wireless technology to extend the wired LAN.

Getting faster

Most wireless LAN links average between 1M and 2M bit/sec. rates — snail-like when compared with wired Ethernet links and their 10M bit/sec. throughput. But Mathias said products that yield between 3M and 7M bit/sec. are coming to market.

Jay Dominic, director of information services at Wake Forest University in Winston-Salem, N.C., said the installation of a wireless LAN is just part of an overall computer project to give network access to students, faculty and administration.

By September, all 900 freshmen at Wake Forest will tote IBM 360CS ThinkPads. Students will be able to obtain IBM PC Cards, which cost about $350 each, from special checkout areas.

They can use the machines and cards to wirelessly access the network from anywhere on campus, including from buildings that couldn't be retrofitted with dedicated lines to the network.

"The cost is pretty

American Red Cross' Richard Hoffman *(left) and* Greg Johnson: *Wireless LANs reduce relief costs*

good considering what we are getting," Dominic said. "Some of those buildings just couldn't be wired, and some would be very expensive to wire. This is going to give the students true, ubiquitous coverage."

The wireless LAN piece of the project will cost Wake Forest about $55,000, Dominic said. That includes installing IBM wireless access points in buildings around campus.

Dominic said the drawback of wireless LAN transmissions is the relatively slow data rate.

But speed isn't an issue for the Red Cross. Instead, it needs to set up temporary communications and data networks in donated space whenever there is a disaster, said Richard Hoffman, senior systems programmer at the Red Cross in Falls Church, Va. "It is impossible to lay wires in those situations," he said.

Hoffman said wireless LANs reduce the cost of providing relief services because it takes less time to track supplies.

It costs about $25,000 for a wireless LAN that can be moved to the site of a disaster, he said.

Wireless LAN revenue

$507M*

$325M*

$204M

1995 1996 1997

*Projected

Source: Farpoint Group, Ashland, Mass.

Tivoli unveils tools to help rein in the Internet

IBM subsidiary fills the need for off-the-shelf help

By Bob Francis

Are you frustrated by the lack of tools available to manage the Internet?

Well, don't fret. Management software is starting to show up for the Internet, although it will be some time before systems administrators find their tool box overflowing with options.

Tivoli Systems, Inc. last week took two steps toward filling that tool box. The Austin, Texas, company unveiled a Net.Commander module for Tivoli Management Environment (TME), Tivoli's system management interface. The module will give system managers real-time Internet usage statistics. It will allow managers to distribute, install, configure and monitor World Wide Web software.

Tivoli, which is a subsidiary of IBM, also announced plans for Tivoli/Plus for Net.Analysis. This program integrates Net.Analysis — a Web server content anal-

ysis product from Net.Genesis, Inc. in Cambridge, Mass. — with TME, as another tool in Tivoli's systems management framework. According to Tim Saltmarsh, an information systems security manager at Texas Instruments, Inc. in Plano, Texas, administrators need more off-the-shelf tools to manage the Internet. "A lot of what we've used up to now has been developed here, simply because there wasn't much available," he said.

Tivoli also announced a partnership with SunSoft, Inc. in Mountain View, Calif., that seeks to define management interface standards for Web software. The Inter-

net Management Specification (IMS) offers a standard way for management applications to interface with Web servers, Web browsers and mail and proxy servers. Several other companies, including Netscape Communications Corp. and Spyglass, Inc., also announced support for IMS, and the specification will be submitted to the X/Open Co.

Net.Commander currently supports Netscape servers that run on SunSoft's Solaris or SunOS and Netscape Navigator on Windows. A third-quarter release will support Microsoft Corp.'s Internet Information Server and Internet Explorer.

The Tivoli Plus module for Net.Analysis also will be available in the third quarter.

Managing the 'net

IMS can interface with APIs in the following Internet services:

- World Wide Web
- Mail
- Newsgroups
- Proxy
- Gopher
- FTP
- Directory

Digital management tool in clear view

By Patrick Dryden

Faithful users are glad Digital Equipment Corp. is starting to deliver tools promised a year ago to manage EnVISN, its enterprise virtual intelligent switched network (VISN) architecture.

The ClearVISN line of network management software will debut this week at Networld/Interop '96. With ClearVISN, Digital users will gain needed control over their internetworking gear in ways that other users already enjoy, the company said.

The first pieces of ClearVISN streamline management of routers from major vendors as well as Digital's virtual LANs, Remote Monitoring (Rmon) tools, hubs and switches. The eight tools are slated for June distribution on a single CD-ROM. They share a core database and set of management policies that users can run from a Microsoft Corp.'s Windows NT platform.

Eric Landwehr *is eager to wake up from 'the nightmare of creating virtual LANs' at Sanford Bernstein*

This approach addresses administrators' need for easier configuration and integrated management. Using Windows also makes it easier to use and offers better pricing.

Digital promises lights-out management for complex multivendor networks, but that goal remains another year out. More sophisticated versions of ClearVISN that provide extensive decision support and automation won't start arriving until late this year.

But ClearVISN already has turned out some management lights at America II Group, Inc., a global distributor that has invested $3 million in Digital network components. "By installing ClearVISN core services, I've cut 30% of my network management costs just for human capital," said Michael Mullicane, chief information officer at the St. Petersburg, Fla., company.

Mullicane put ClearVISN in control and then laid off six staffers who had been required to sit at the management console, watch traffic patterns and build a network knowledge base.

Dependability

"ClearVISN won't go away and never gets sick, so it gives us consistent management," Mullicane said. "Also, it cuts the learning curve down to teaching policies just once — to the software."

Digital initially focused on management from NT. Delaying Unix support won't please some Digital users, according to John Morency, principal at network consultancy The Registry in Newton, Mass.

But putting NT first suits such users as Eric Landwehr, network operations design manager at Sanford Bernstein & Co. The New York portfolio manager has migrated about 90% of the company's 2,000 clients and servers in seven offices from Unix to NT.

With the ClearVISN recovery software, which will ship for $495, Landwehr was able to save configuration data from his Digital hubs for the first time.

"Now I can set up a new hub or restore a faulty hub in seconds instead of an hour," Landwehr said.

He said he wants to try the virtual LAN manager, which costs $1,495, to speed and simplify building these temporary LANs for users.

Such capabilities are great for Digital users but are "basic stuff" already delivered by internetworking leaders, Morency said.

The folio of management applications can help users design policies and scale management by layering new tools from the package on top of the common core as their networks grow, said Nick Lippis, president of Strategic Networks Consulting, Inc. in Rockland, Mass.

Digital turned to partnerships for two parts of ClearVISN. The $4,995 multivendor router manager comes from Stony-Brook Software in Bohemia, N.Y. The $2,995 Rmon manager to centrally monitor agents throughout the network is based on software from Frontier Software Develop-

Early ClearVISN user Michael Mullicane *of America II Group, Inc. traded 'anecdotal management' by six staffers for consistent policies by software*

ment, Inc. in Chelmsford, Mass.

Such partnerships speed delivery to Digital users who have been waiting for Rmon and other tools.

"It's satisfying to see Digital pulling together products from experts instead of doing it all themselves," said Scott MacPherson, manager of information technology management at Ikea North America, Inc., a home furnishings retailer in Plymouth Meeting, Pa.

"Our small, centralized shop needs reliable tools to get our hands on more information about remote sites," MacPherson said.

Novell enhancements previewed

Green River slips downstream to end of August

By Laura DiDio
SALT LAKE CITY

The news at Novell, Inc.'s Brainshare technology developer's conference held here recently wasn't *all* Internet-related.

Novell went to great lengths to say it is focused on the Internet and will move forward as a major player there. But executives also offered attendees a preview of the enhancements in the next release of NetWare, code-named Green River. Novell also said its planned introduction of the product has slipped from June until the end of August.

Green River, announced at last fall's Networld/Interop '95 show in Atlanta, is the first portion of Novell's three-phase strategy to enhance its core NetWare network operating system and NetWare Directory Services (NDS).

Green River was designed to implement many of the most common "user-requested NDS enhancements," said William Donahoo, Novell's acting vice president of marketing. These include new or enhanced utilities that will make it easier for network

administrators to configure and manage their enterprise networks that use NDS, as well as tools that will give users more control over their desktops.

Tim Martin, assistant administrator of systems integration at the Ohio Department of Taxation in Columbus, said without NDS, the agency would need six administrators to manage its 12 sites. "NDS enables us to deploy just one or two network administrators to manage the enterprise. And when Green River is released, I'm confident [they will] be able to cut their administration time significantly in half," Martin said.

One Green River enhancement is the ability to use the NWadmin utility to make group changes to users or objects on the NDS tree. This will let administrators move groups of users and all network devices such as printers to different locations on the NDS tree. Currently, in NetWare 4.1, network administra-

tors can move, add and change only one user or network device at a time, Donahoo said.

"This type of functionality in Green River will greatly reduce administration time," said Thad Hymel, distributed systems manager at Hibernia National Bank in New Orleans. This feature is crucial to Hibernia, which has several thousand users connected to more than 150 NetWare 4.1 file servers throughout Louisiana.

"I can't wait for Green River to be available. When we initially migrated to Net-Ware 4, we outsourced the NDS configuration portion specifically because we were wary of the difficulty factor. But the improvements in Green River should make enterprise management much easier," Hymel said.

A recent study by Dave Cappuccio, an analyst at Gartner Group, Inc. in Stamford, Conn., said NetWare 4 and the subsequent Green River, Park City and Moab releases can potentially save customers "more than $900,000 [in management costs] over three years for companies with 30-plus servers."

Node crown

Last year Novell shipped more NetWare nodes worldwide — 51% — than all other network operating systems combined, according to International Data Corp., a market research firm in Framingham, Mass.

Briefs

McAfee buys help
McAfee Associates, Inc. recently purchased **Vycor Corp.** in College Park, Md. The $9 million purchase gives McAfee in Santa Clara, Calif., a tool to differentiate the company's line of LAN management tools from those of its competitors. McAfee plans to integrate Vycor's client/server help desk products into its SaberTools network management product line over the next few months, company officials said.

3Com adds Token Ring
3Com Corp. has added the Net-Builder Remote Office (NBRO) 523 and 527 routers to its product line. Both are Token Ring routers. The NBRO 523 supports IBM SNA and has an Integrated Services Digital Network Basic Rate Interface (ISDN BRI) connection, which can be used as a primary or backup wide-area network link. The NBRO 523 costs $3,295, and the NBRO 527, which can be used as a central site router to support multiple NBRO 523s, costs $4,295. Both units are shipping.

210 GB Per Tape At 20 MBS.

Data compression option utilizes 100% lossless algorithm

The fastest half-inch tape drive on the market

Rack mount and library configurations available

Need that kind of performance?
You bet you do.

Because slow backup and restore can cost you *plenty* — in system time, in delayed customer response, and in wasted resources.

The CY-9000 half-inch digital DTF drive is a breakthrough in performance that slashes backup and restore time while providing unsurpassed reliability and data integrity.

No other tape drive can match it.

1/2" Technology	Transfer Rate (Native)**	Tape Capacity (Native)**
CY-9000 DTF	12 MBS	42 GB
3590	9 MBS	10 GB
VHS	8 MBS	27.5 GB
3490	3 MBS	800 MB
DLT 4000	1.5 MBS	20 GB

* Sentry Market Research
** All drives, except VHS, are available with data compression.

The cost of system time varies from site to site, but a recent study has put the cost of a medium sized PC LAN at **$18,000 per hour** — and the cost of a UNIX network at **$30,000 per hour**.* Numbers like that make it easy to understand how a backup/restore solution that can do its job faster can save you serious money.

For example, for a single 40 GB restore, the CY-9000 will save you...

$9,000 over 3590,
$13,500 over VHS,
$83,100 over 3490, and
$194,100 over DLT.

And you won't need to change tapes...
4 times with 3590,
2 times with DLT, and
50 times with 3490.

The CY-9000 can store 42 GB uncompressed on a single tape, at 12 MB per second. Optional data compression can boost tape capacity to up to 210 GB per tape and speed to 20 MB per second — for the fastest backup in its price range.

Based on field-proven helical scan recording technology, the drive is available with Fast/Wide

SCSI, ESCON, IBM Channel, and Parallel Data Channel interfaces for plug compatibility with the widest range of computer systems. A 32 MB data buffer speeds throughput, and you can add up to an additional 128 MB of *variable rate buffer* to handle the most demanding data collection applications.

The Advanced SCSI Processor lets two or more 8mm tape drives work together in striping, mirroring, cascade, independent, and offline copy modes.

If you're a leading company confronting a shrinking backup window or if you're a growing company wanting to boost productivity and save resources, the CY-9000 is probably right for you. We'll also be glad to talk to you about our high performance 8mm tape and optical disk solutions.

Call today at
(804) 833-9000.

CYBERNETICS

Tera One • Yorktown, Virginia 23693 • Fax: (804) 833-9300

It never works
as well without
the middle.

Introducing
IBM Software Servers.
The missing part of the
client/server picture.

You've got clients. You've got servers.
But to build the most efficient
client/server system, you'll need the
stuff that works in the middle—linking
them all together. That's where the
new IBM Software Servers come in.
There are seven in all, each designed to
make a specific client/server solution
live up to its promise. They work alone,
they work together, they just plain
work—because they're based upon IBM
technologies proven to be ruthlessly
reliable in businesses the world over.
And they're built to run on your choice
of platforms: OS/2, Windows NT™ and
AIX. Now, as you demand more of your
network, make sure you have software
that's up to the task. With IBM Software
Servers, you'll never again have that
empty feeling in the middle.
Visit www.software.ibm.com/info/GE110/
if you'd like more information.

. . .

Lotus® Notes®
Database Server
Internet Connection Server
Transaction Server
Systems Management Server
Communications Server
Directory & Security Server

. . .

IBM

Solutions for a small planet™

Netscape Server Software.

The internal web that hotlinks your sales team to the latest news, forecasts, and hottest sales leads.

INTRODUCING SECURE, OPEN SERVER SOFTWARE FROM NETSCAPE.
Now, within your organization, you can create an intranet for publishing information online. And, with hyperlink technology, your people can connect to information with a simple point and click.

Netscape software includes encryption technology to protect your work. Also, Netscape Servers are based on open industry standards and are available on Windows NT and Unix platforms from Compaq, Digital, Hewlett-Packard, Informix, IBM, NCR, NEC, SCO, Siemens Nixdorf, Silicon Graphics, and Sun. So, if you want your people totally connected, don't just wire their computers: Hotlink their information.

NETSCAPE

Call us at 1-800-409-6224. Or see us at http://info.netscape.com/cw1

The Internet

Documenting the conference call

By Mitch Wagner

PictureTalk, Inc. in Pleasanton, Calif., is offering software to make conference calls the same as real-life meetings — except you have to provide your own crullers and coffee.

PictureTalk's software, released late last month, allows users to share presentations over the World Wide Web at the same time they are chatting on a teleconference call.

It works like this: Users download free client software.

While participating in a conference telephone call, they all log in to the same uniform resource locator (URL) on the Web, which causes a server at that URL to send a signal to launch the client software on the users' machines.

Users can then share and alter presentations, spreadsheets or any other documents. The software works with videoconferencing as well, so users also can share video during Picture-Talk sessions.

Long-distance selling

"I think there's a definite need for something like this," said Tim Kemp, manager of on-line services at First Chicago NBD Corp., a Chicago bank. "In the sales process, a salesman and prospect could share a screen and fill out an application together. You could present your value proposition to the customer through the Internet."

The free client runs on Microsoft Corp.'s Windows 3.1 and Windows 95 and Apple

Computer, Inc.'s Macintosh System 7.x operating systems. The server runs on Microsoft's Windows NT and Sun Microsystems, Inc.'s Solaris. The server is priced starting at $10,000 per 100 concurrent users, plus $100 per each additional concurrent user.

PictureTalk officials said the client software is written in a platform-independent programming language and is about

400K bytes in size. They said they hope to port it to a wide variety of devices, from Unix workstations to set-top television boxes and palmtop computers.

A big question at this point is how the PictureTalk software will be able to compete with far less expensive software introduced earlier last month by FutureLabs, Inc. (http://futurelabs.com).

FutureLabs is offering a free, six-month trial and $49-per-year subscription. Alternatively, for $2,500, it will license the server for in-house operation.

PictureTalk said its product, which uses a client/server model, has faster performance than FutureLabs' peer-to-peer model. Also, the PictureTalk software gives the user greater control over changes to the original version of a document.

PictureTalk, Inc.
Pleasanton, Calif.
http://www.picturetalk.com

Product: PictureTalk server and client
Purpose: Allows real-time document sharing over the Web
Platforms supported: Windows 95, Windows NT, Macintosh and Unix (future)
Replaces: Proprietary whiteboard groupware
Price: Server starts at $10,000; client is free

April foolery

"AFJ" is the Internet-accepted way to designate an April Fools' Day joke. And boy, the 'net is full of them. Watch out this year for a bulletin from a bogus task force that talks about Internet Cleaning Day. The missive urges users to shut down and unplug their computers from the 'net so that the worldwide network can be scrubbed and spruced.

● Apple Computer, Inc. users seem to get hit hard with pranks this time of year. A collection of Macintosh-specific spoofs in recent years includes a fake press release announcing Caffeine Manager, a tool to let Macintoshes interface with soda and coffee machines. Another letter warned of hidden evil messages in Microsoft-made icons. "Bill Gates is the devil" and "Worship Bill" were among the

dastardly secrets contained in the icons. Check out **http://www.astro.nwv.edu/lentz/mac/humor/april-fools/home-af.html**.

● Trekkies and others interested in *Star Trek* will appreciate the Top 10 April Fools' Jokes on the *Enterprise*. It's at **http://www.prairienet.org/~twilight/lists.html#A.2**.

● For a detailed archive of on-line April 1 humor dating back to 1984, go to **http://sunsite.unc.edu/dbarberi/april-fools.html**. Check out one of last year's best jokes, which warned computer users everywhere of a "severe bit shortage." The bogus Emergency Computer Response Team told users to guard against bits "escaping into the atmosphere."

● A related site archives Usenet-only pranks at **http://sunsite.unc.edu/pub/academic/communications/april-fools/**.

● Kremvax is perhaps the granddaddy of all cyber April foolishness, dating back to the mid-1980s. For a history of the joke – in which a Usenet aficionado forged a post supposedly from a Usenet site at the Kremlin – see **http://www.huls.hiroshima-u.ac.jp/Computer/Jargon/LexIconEntries/Kremvax.html**. As the story goes, when a real Russian locale emerged several years later, many Usenet users didn't believe it.

– Kim S. Nash

Shipping company may sail intranets

By Kim S. Nash
OAKLAND, CALIF.

Like many of you, industrial shipper American President Cos. is weighing the costs, needs and tingly potential of using intranets to replace at least some of its systems.

The company, which shepherds heavy cargo by sea and land to destinations worldwide, sees timesaving, cost-cutting promise in making internal corporate use of the public Internet.

"I wouldn't say we've taken the plunge, but we're looking at the pros and cons," said Diane Silver, vice president of information strategy at the 148-year-old company.

In fact, a pilot this fall involv-

ing hundreds of users is expected to give the firm some answers.

Time is American President's biggest worry. An intranet could more quickly let the logistics department rework schedules when ships are late or a customer can't get cargo to a dock on time. Now those distress calls come from all over the world, in all kinds of ways: fax, telephone, electronic mail and a small, private electronic bulletin board.

No to Notes

Money counts, too.

The cost-conscious company doesn't want to spend excessively on new technology, Silver said.

Internet firewall market is ablaze

By Gary H. Anthes

The market for Internet firewalls, already hot, is heating up further as companies roll out corporate intranets and seek ways to protect them.

Firewall pioneer Trusted Information Systems, Inc. last week introduced the Gauntlet Intranet Firewall, software to protect intranets from intrusion by unauthorized employees.

Fred Avolio, marketing vice president at the Glenwood, Md.-based company, said companies that are technologically savvy and especially concerned about security — such as banks and pharmaceutical companies — are pioneering the use of intranet firewalls, just as they did two years ago in the use of Internet firewalls.

Traffic blockers

Internet firewalls are computers — sometimes routers — that run specialized software with user-specified rules for blocking certain services or kinds of traffic between the public Internet and the private corporate network. Intranet firewalls do the same thing for subnetworks inside the company.

Sometimes an intranet firewall is set up to protect sensitive organizational units, such as payroll, from intrusions by employees outside those units. Sometimes they are set up to isolate a critical operation, such as a utility's nuclear reactor, while still allowing employees in that operation to use the full corporate network and the Internet.

Boston Edison Co. uses three firewalls — one from CheckPoint Software Technologies Ltd. and two routers — to protect the corporate WAN and the LANs at 20 sites. John Dubiel, manager of planning, said the arrangement protects the utility in these three ways:

● It blocks access to the corporate network by outsiders on the Internet.

● It blocks unauthorized employees from accessing several protected subnetworks, or intranets.

● It prevents employees from accessing the Internet in ways that policy forbids.

"We want to very tightly control access so that there are no inadvertent performance hits or anything that would be detrimental to

the operation of these subnets," Dubiel said. "It's kind of like a double firewall."

Different molds

In addition to the move to intranet firewalls, firewall vendors are beginning to break out of the traditional Unix molds. San Francisco-based CheckPoint and Raptor Systems, Inc. in Waltham, Mass., recently introduced firewalls for Microsoft Corp.'s Windows NT. A number of their customers said they will standardize on NT to simplify their operating environments.

Coldwell Banker Corp. in Mission Viejo, Calif., for example, has nine Token Ring LANs tied together by a frame-relay wide-area network. At present, the LANs include Unix- and NT-based servers, but the real estate company will scrap the Unix boxes in favor of NT, said Theresa House, managing director for network services.

House said Coldwell Banker is also setting up an intranet for all employees to use. She said the company will use the NT version of CheckPoint's FireWall-1 to protect the frame-relay WAN and the new intranet.

Ted Julian, research manager for Internet commerce at International Data Corp. in Framingham, Mass., said end users who set up intranets may neglect security. "Intranets right now are kind of ad hoc, grass-roots affairs," he said. "So you may not be able to make the same assumptions about the person putting them together as if IS were involved."

Gracious hosting on 'net

No-hassle, high-speed Web sites available from BBN Planet

By Mitch Wagner

BBN Planet has introduced a low-priced service that allows companies to put World Wide Web sites on computers owned and operated by the Internet service provider, using BBN's high-speed Internet connections.

The company, a unit of BBN Corp., last week launched Web Advantage Silver, a service with prices starting at $295 per month. BBN sees the service as a low-cost alternative for users who want high-speed access to the Internet but not the expense and bother of paying for a dedicated, high-speed connection and maintaining servers in-house.

Web Advantage sites are connected to the 'net via 10M bit/sec. links. The program is BBN's latest entry in a service area known as Internet hosting.

A hosting lets users control the content of a Web site while leaving the scut work of keeping it up and running to outsiders.

"It's far easier to do it this way than to bring the operation in-house," said Joe Butt, vice president of product development at Media Circus L.L.C., a marketing and design firm in New York.

Content control is another reason to use a Web host.

"We need to have control over a Web site internally," said Murray Lambkin, manager of training and development at Nowsco Well Services Ltd. in Calgary, Alberta.

Media Circus *runs World Wide Web sites on BBN Planet's Web Advantage Silver and Web Advantage Gold plans. By doing so, the company gets high-speed Internet connections but doesn't have to maintain the servers in-house.*

"Our business is very reactive to new technology, products and chemicals. We have to be able to update the system internally, rather than providing the information to someone else to do it."

Web Advantage Silver users can put up to 50M bytes of data on one of BBN's Silicon Graphics, Inc. servers. There is also a usage charge; users can deliver up to 300M bytes a month free. That means that if a Web page is 100K bytes, it can be viewed 3,000 separate times. After that, data throughput is charged at 18 cents per megabyte. There is a one-time start-up fee of $495.

The Silver program follows BBN's introduction late last year of the Web Advantage Gold plan. For $2,000 to $6,000 per month, the Gold plan gives users a dedi-

cated server. The dedicated server ensures high throughput, said Carl Howe, product manager for Web Advantage.

The Gold plan also ameliorates security concerns, Butt said. "Some people get squeamish about sharing a server with 70 or 80 other users," he said. Media Circus uses the Gold and Silver plans.

BBN isn't the only company offering Web hosting services. Most Web consultants also offer the services, running sites on T1 connections, which are slower than the ones BBN offers. The big Internet services also offer Web hosting services. UUnet Technologies, Inc., for example, offers Web hosting that is priced competitively with BBN's; it costs $300 for up to 250M bytes of data.

Briefs

Web-ifying mainframe data

Database middleware maker **Information Builders, Inc.** branched out in a new direction with products designed to sweep mainframes on to the World Wide Web. Web3270 is a gateway that translates IBM MVS data to Web-readable Hypertext Markup Language. It is due to be available for free downloading from Information Builders' Web site (http://www.ibi.com). The New York vendor

also plans to ship an MVS Web server late this year.

Company to ship NetWare Web server

North Andover, Mass.-based **Process Software Corp.** plans to ship a $795 Web server for **Novell, Inc.**'s NetWare operating system. The product, Purveyor for NetWare, will enter a market with few competitors. **American Internet Corp.** in Bedford, Mass., recently shipped a NetWare product; No-

vell itself licenses its Web server offering from American Internet.

Big Blue Java

Native support for Java, **Sun Microsystems, Inc.**'s Internet programming language, will be included in a release of **IBM**'s OS/390 mainframe operating system due in September, said Herman Lamberti, vice president of marketing at IBM's System/390 Division. Lamberti said IBM this year expects a repeat of the mainframe growth rate that it achieved last year, when shipments increased by a whopping 60% to a record level

of 255,000 MIPS.

SHORT TAKES CommerceNet, an alliance of vendors and user companies that promotes Internet business, started a similar group in Japan "to stimulate electronic commerce throughout the world," the group said. See http://www.commerce-net.ntt.jp. . . . Up and coming Internet applications development company **Business@Web, Inc.** in Cambridge, Mass., and **NEC Corp.** will develop a workflow product that works with enterprise business applications, internal intranets and the Internet.

Sure you can host your own Web site, assuming you have an endless supply of money, time and hair.

Why go through the aggravation of hosting your company's Web site internally when you can turn the job over to BBN Planet, a company with unparalleled Internet experience? Just think. No late-night maintenance emergencies, no phone calls from customers annoyed by access problems, no staffing headaches. With Web Advantage, you get high-end UNIX™ servers running Netscape™ software, high-speed T3 Internet connections and round-the-clock service and support – all without losing control over your site's content.

For a free Cost Justification Analysis, visit http://www.bbn.com/webadvantage or call (800) 472-4565.

BBN PLANET

How Business Does Business
On The Internet.

Alaris, Inc. has unveiled QuickVideo and Videogram Player.

According to the Fremont, Calif., company, the products let users take video clips and captured video and create compressed multimedia presentations, or videograms. The videograms can include video, audio and text.

QuickVideo is a plug-in video capture board that compresses video before sending it to a hard disk. It includes features that let users package existing video clips or convert video clips from other compression formats into videograms. Videogram Player is a stand-alone application that plays back the videograms. QuickVideo costs $399. Videogram Player is available free at Alaris' home page (http://www.alaris.com).
▶ *Alaris*
(510) 770-5700

Itribe, Inc. has introduced NetCal 2.0, an interactive calendar.

According to the Norfolk, Va., company, NetCal 2.0 is an Internet and World Wide Web calendar that lets users navigate day, month and year calendars to post personal messages and important dates locally, regionally, nationally or internationally. Event entries are verified and approved before they are placed on-line.

NetCal authenticates a user's identity by electronic-mail address and password. It was designed to keep track of the events users enter and allows them to change or delete the events at later dates.

NetCal is free. More information is available at Itribe's home page (http://www.itribe.net/netcal/).
▶ *Itribe*
(804) 446-9060

Durand Communications Network, Inc. has announced MindWire NT.

According to the Santa Barbara, Calif., company, MindWire NT is a live Internet applications server with an integrated World Wide Web server. It was designed to let companies offer Internet groupware applications, on-line services and dynamic publishing in cooperation with their existing Web services. The MindWire client lets Internet surfers connect to all public access MindWire systems.

MindWire NT supports existing development tools. User access is controlled by a system of keys and locks managed by the system manager for each button, field or graphic on the MindWire menu.

Pricing for MindWire NT starts at $2,495 for a license for 10 simultaneous users. More information is available at Durand Communications' home page (http://www.durand.com).
▶ *Durand Communications Network*
(805) 961-8700

Terasoft Technology Corp. has unveiled Visual Web 1.0, Internet browsing technology for the World Wide Web.

According to the Milford, Mass., company, Visual Web 1.0 transforms a single-page view of conventional Web browsers into graphical images of any Web site. When users specify a Web site's uniform resource locator, the product brings up a panoramic view of the site's contents in its hierarchical layout, with each page labeled by its subject title.

Visual Web was designed to save users connection charges by allowing them to disconnect from their Internet service provider and use any Web browser to scan through the sites they download. It offers an overview of the site for navigation through large sites and lists local and remote hot links. It also lets users manipulate the graphical layout of Web documents on their screens.

Visual Web costs $29.
▶ *Terasoft Technology*
(508) 634-8400

The world's top corporations have changed their view of storage and retrieval. Avis, Sony, Nike and MCI all use EMC storage to take maximum advantage of their most precious resource: information. They know storage is where access to information lives. That it's a business-critical element of IT.

These industry leaders also know that to get the highest performance possible, storage must be purchased separately from their computer systems. They understand that computer companies who also happen to sell storage treat it as a commodity. Holds a lot, but it's pretty slow. And it usually works only with their computers.

At EMC, storage is all we do. It's our entire business.

Ordinary Information Storage.

EMC Information Storage.

We focus on creating high-performance solutions for instant access to enterprise-wide information. No matter which computer platform you use.

The key is our intelligent software that lets customers use our storage to do more than just store. It actually gives them a competitive edge by helping them open new markets, accelerate product development and maintain the highest levels of customer satisfaction possible.

To find out how EMC can power your company into the next millennium, call 1-800-424-EMC2, ext. 213.

EMC²
THE STORAGE ARCHITECTS

Free To Do More.

Messaging protocol is winning converts

IMAP lets users pick and choose messages

By Tim Ouellette

An emerging messaging standard for the Internet that gives users more options for accessing their messages is gaining interest among vendors.

The Internet Messaging Access Protocol (IMAP) lets users access their messages on a server and then choose which messages, or parts of messages, they wish to download.

This contrasts with the all-or-none approach of the current Post Office Protocol standard, which requires that a user download the entire contents of his in-box.

User control

"IMAP is important in the client/server environment. It gives users a lot more control over what mail resides on the server and what mail resides on the client," said Geoffrey Bock, an analyst at Patricia Seybold Group in Boston. "This has been a feature in LAN-based E-mail software for a long time."

For example, one user at a Canadian engineering firm said his salespeople don't want to download storage-hogging engineering drawings that are attached to electronic-mail messages.

And Internet E-mail software providers are taking notice, trying to make their products more competitive with popular LAN-based, proprietary packages such as Lotus Development Corp.'s CC:Mail and Microsoft Corp.'s Mail.

Although interest in the Internet is exploding, these Internet E-mail packages have yet to deliver the security and reliability that business users want and currently find in the more closed LAN-based products.

Last week, SunSoft, Inc. and Isocor, Inc. announced IMAP servers, and recently TeamWare began selling one. Even members of the newly formed Internet Mail Consortium (IMC), made up of Internet mail software companies, think adoption of the IMAP standard is as important as dealing with the security concerns prevalent among Internet users.

The IMC's two highest priorities are to "use the most effective security technologies on the Internet and rapidly deploy IMAP" in members' products, said Clyde Johnston, president of IMC member Innosoft International, Inc.

IMAP also lets several users share access to an account, supports server-based searches and provides message authentication.

American President Cos. Oakland, Calif.
http://www.apl.com

Business: Transportation of heavy cargo worldwide via ocean, rail and roadways.

1995 sales: $2.9B
1995 profits: $30M

Goal: To quickly trace misplaced cargo and other shipping problems.

Technology: An intranet system using Netscape Web servers and browsers and a homemade Web-to-database connector. Other pieces are under review while the project is in development.

Intranets

Notes, for example, has been ruled too costly. A test of Lotus Development Corp.'s groupware a few months ago found that installing and maintaining Notes for 5,000 employees would be too expensive, Silver said. She declined to elaborate.

Now, roughly 10 people from information systems, marketing, customer support and other departments will study intranet possibilities, said Gil Roeder, director of marketing.

As at other companies, marketing has had a big say in how American President has used Internet technology. Marketing, rather than IS, spurred the company's external World Wide Web site.

The group plans its first intranet trial this fall and expects it to link "hundreds of users" in the Denver and Atlanta customer support offices to headquarters here in Oakland, Roeder said.

For the pilot, the company will use Netscape Communications Corp.'s Navigator 2.1 browser and Enterprise Server Web software. Hardware is from Sun Microsystems, Inc.

One problem solved

Already resolved is one of the bigger headaches of building an intranet: connecting the new stuff to existing databases. The legacy gear in question are IBM mainframes with IDMS databases and RS/6000 Unix machines with Oracle Corp.'s relational database.

The IS group has spun homemade Web-database translators using the Open Software Foundation's Distributed Computing Environment standards for writing distributed, mixed-vendor applications.

Ultimately, American President envisions linking its intranet with Web applications so customers can access data on their own shipments, similar to what FedEx Corp. offers.

"But we've got work to do," Silver said. "We know that."

Motorola service connects cell phones to the Internet

By Rebecca Sykes

Motorola, Inc. today announced a service that lets people connect their cellular telephones to the Internet.

Initially, the service will let users transmit 120 characters of digital information from the Internet to the phone display screen, where they now see their phone numbers, officials said.

Information short enough to fall within the character limits includes up-to-date stock prices, weather forecasts and sports scores, they said.

Motorola plans to leverage Code Division Multiple Access (CDMA), one of two burgeoning digital cellular voice offerings in the U.S. Within two months, CDMA cellular operators in the U.S. will begin field tests of the 120-character short messaging technology, Motorola officials said. The service should be commercially available sometime this year.

In addition to short messaging, Motorola's new service will offer text-to-speech capability, allowing cell phone users to dial in and have their electronic mail read to them by an automated reader.

At first, users will need to specify that certain E-mail — for instance, any bearing the return address of their boss — be routed to a server run by a third party. The third party would probably be the cellular

operator that sells the user Motorola's service. By mid-1997, however, users will be able to dial in directly to their own computers to have their E-mail read.

Text-to-speech capability will be available for CDMA and the rival Time Division Multiple Access and European Global System for Mobile communications digital cellular technologies. The text-to-speech function can work on analog or digital phones, so subscribers won't have to buy new phones to use the service.

No tremors

Analysts agreed the new services will appeal to some users but said it will by no means shake up the cellular industry.

People on the road could check the latest stock price or shipment information right before going into a meeting, said Iain Gillott, an analyst at International Data Corp. in Austin, Texas.

"This is what we should be doing with wireless and the Internet for right now," Gillott said. "This is as good as it's going to get today" without solving some of the cellular industry's problems, such as cost, speed, coverage and latency, he said.

Pricing for the service will be set by the cellular operators, Motorola officials said.

Sykes is a U.S. correspondent for the IDG News Service.

What if the world's most **powerful web server** were also the **easiest**?

What if you could install it in under **5 minutes**?

What if it were **free**?

Microsoft
**Internet
Information
Server**

Chances are, you'd run to your computer and download Microsoft® Internet Information Server. It's optimized for the Microsoft Windows NT™ Server operating system,* which speaks for itself. But there's much more to tell. It's 100% faster than all other Windows NT-based web servers,** and executes web applications up to five times faster than all other servers.*** Which certainly makes it your best choice for publishing information on the Internet and internal corporate webs. • Everything you need is built-in, including Web, FTP, and Gopher services, Secure Sockets Layer, and a high-performance open Internet Database Connector. All with the graphical ease you've come to expect from Windows. • It couldn't be any less expensive. So download it at no charge today by visiting http://www.microsoft.com/infoserv. If you prefer, you can get it at your local reseller for about $99 or with Windows NT Server for $999. Call **(800) 426-9400** for the name of a reseller near you, or for information on an upcoming Internet Information Server Seminar.

download
INTERNET
INFORMATION
SERVER FOR
WINDOWS NT
free ◄

Microsoft
WHERE DO YOU WANT TO GO TODAY

1 GIGABYTE HARD DRIVE

(Perfect for containing your 12-hour workdays)

120 MHz PENTIUM PROCESSOR

(Perfect for flying through every application)

UNDER $1,700*

(Perfect for making accounting happy)

The joke in the computer business generally goes something like this: performance, quality, affordability—pick any two. Well, it seems Compaq has rendered that little witticism a bit obsolete. Our Compaq ProLinea models, which start under $1,325; offer Pentium® technology to run Windows® 95, the speed of PCI bus architecture, and a variety of unique serviceability features.

Which means now, things sound a bit more like this: performance, quality, and affordability—pick *three*.

COMPAQ

Has It Changed Your Life Yet?

Corporate Strategies

Midrange moxie

Health care firm chooses AS/400s en route to objects

By Craig Stedman

Take your AS/400 green-screen medicine today, and tomorrow you'll get an object-oriented client/server treat.

That's the prescription Apria Health-care Group, Inc.'s information systems department has written for its users.

The $1.1 billion home health care company in Costa Mesa, Calif., is doing away with a mishmash of systems and standardizing on IBM's AS/400 midrange computers.

Apria, which was formed last June by the merger of two rivals, is expanding a network of low-end AS/400s that run homegrown, terminal-based applications to cover its 350 branch offices.

Apria's John Farmer: Cutting over to the object-oriented approach is 'a multi-year process'

Method to upgrade madness

Process improvement methodology yields million-dollar savings

By Thomas Hoffman

It often takes a year or more to design and deploy a new system. But what if you could encourage teamwork, make faster decisions and cut out wasteful processes along the way?

WMX Technologies, Inc., an Oak Brook, Ill.-based environmental services firm, found that taking those steps helped it upgrade its billing system in just two months and save $11,000 on the project last year.

The development team of end users and IS technicians was guided by a process-improvement methodology called Workout, developed by Leap Technologies, Inc. in Chicago. It helps IS/business teams identify processes that need to be streamlined and then take action.

For WMX, the goal was to revamp an IBM mainframe-based billing system to track national accounts better and churn out customer invoices faster. WMX re-engineered the system to enable about 20 end users in the billing department to download the mainframe data into PCs running Microsoft Corp.'s Access database. The enhanced system went live last July.

Using Workout on that and several other projects yielded savings of $1.3 million last year. With more than 70 Workout teams in operation, WMX expects to save an additional $4.5 million this year, said John Biedry, WMX director of business.

The methodology has other benefits for IS. "It's giving us a better understanding of the needs of our end users and their departments," said Patricia Anderson, manager of systems development at WMX.

In some ways, Workout is similar to total quality management (TQM), a philosophy of continuous process improvement.

Like TQM, Workout emphasizes teamwork between departments — such as IS and accounting — to run through a list of deliverables, such as a decision about the appropriate graphical user interface for a system.

But unlike TQM, Workout is fast. Projects are done in six to eight weeks because ideas are acted on immediately.

Without Workout, "it probably would have taken us a couple more months to get the new billing system in place," said Sharon Metz, supervisor of national accounts at WMX.

The usual 18- to 24-month IS development cycle is "not acceptable in today's business environment," where competition forces companies to react immediately to changing market conditions, said Tom McAndrew, a managing director at CSC Consulting in Waltham, Mass.

WMX's Sharon Metz *(left) and* Patricia Anderson *helped implement Leap Technologies' Workout, which saved the firm $1.3 million last year. This year, savings could reach $4.5 million.*

Commentary

Enrique Crespo Jr.

Selling automation to salespeople

For salespeople, the Information Revolution is a dilemma. And that's a problem for us in IS.

Even as salespeople have become more sophisticated during the past three decades, at their core, they have remained "people persons." They are the gregarious types who understand the value of shaking hands and playing golf on a rainy day.

But with the Information Revolution, knowledge and information is now a key factor to successful selling. And that means computers.

And computers mean that salespeople now have a machine as a partner.

It's a cultural challenge that is difficult to bridge. How do we deal with this situation? The basic approach consists of issuing a PC to every salesperson and expecting them to take to it like the proverbial ducks to water. I have seen companies implement things this way. It doesn't work.

The computer itself is no guarantee of success. Plus, computer equipment is an expensive proposition. Based on my experience and industry sources, the cost could be as high as $15,000 per user. This figure includes costs such as hardware, software, training and support. It doesn't include the ongoing costs for programming and telecommunications.

What's the payoff?

For an investment of this nature, firms need better assurance that sales will increase dramatically. We need to understand how to obtain the necessary productivity from our commitment to computers.

As a responsible IS manager, you must pay close attention to picking the hardware and software and resolving the other technical issues involved in a rollout. But, above all, ensure that time, effort and money are invested in changing the culture.

During the past year, I directed a 120-person nationwide sales force automation project. We put great emphasis on the cultural change it would bring. Before we deployed complex application programs, we visited our regions and held two-day training programs for groups of 8 to 12 salespeople.

Once they understood that we were there to support their efforts rather than to force a new process, they were very cooperative. Our salespeople gradually got comfortable with everyday applications such as word processing and spreadsheets and are now ready to accept custom sales applications.

You cannot automate salespeople; you can only provide them with a better way to sell. Give them knowledge and flexibility, and they will take care of the return on investment factor.

Crespo is a manager of corporate sales systems at The Torrington Cos. in Torrington, Conn.

Don Tennant

Hong Kong: cautious optimism

I recently asked 100 IS professionals whether they felt threatened by the approach of 1997, when China will gain control of Hong Kong.

There was dead silence among the group attending a panel discussion at this year's Hong Kong Share/Guide conference. If anyone did harbor fears, they weren't willing to admit it.

That's not to say no one expressed concerns. For starters, economic security was a hot topic. "We are all optimistic. But for how long?" one audience participant asked. "[IS] professionals in China are willing to receive something like HK$30,000 [U.S.$3,879] per year. I assume that anyone sitting in this room probably receives more than that in one month. How can we face that kind of competition in terms of compensation?"

According to Astec International Group MIS manager James Tang, the issue boils down to the ability of the people of Hong Kong to contribute business and management skills.

"For the programmer, I'm very pessimistic — it's a matter of supply and demand, so don't kid yourselves. There are a lot of good programmers in China, India and many other places. And they are coming here to grab your job," he warned.

"On the other hand," Tang said, "at the management level, for people who understand business, there's always a role for you to play. So you should be very optimistic."

But as one audience participant pointed out, there is a caveat to that assessment. Whether Hong Kong's IS professionals will be able to capitalize on their business prowess is an open question, he argued.

"It depends on whether Hong Kong can maintain its free business development environment and free information-absorbing environment," this audience member said. "Without these factors, the advantage of our management people will become less and less. The reason people in Hong Kong have an advantage is because Hong Kong has a very free environment for us to share our information and experience. That may not be the case in today's China."

But another panelist, Hong-Kong Telecom IMS project manager Dorothy Chan, said Chinese authorities will not take any actions that jeopardize Hong Kong's

position as a technological gateway to the Mainland.

Others in attendance raised concerns about the apparent smugness of Hong Kong's IS professionals.

"We can pat ourselves on the back all we want," one audience participant chided. "We think [Mainland Chinese] are not as skilled as we are. How big is our biggest network? How big is theirs? Skill comes with complexity. Hong Kong people don't have that kind of experience."

Hong Kong's IS professionals also lack experience with the kinds of infrastructure problems that will confront them when their responsibilities eventually extend to the Mainland, noted Jagdish Bajaj, MIS manager at KPS Retail Stores.

In the end, the consensus appeared to be one of cautious optimism. Bajaj said it best. "It is an opportunity, for those people who do not see it as a threat."

Tennant is editor in chief of Computerworld Hong Kong.

Midrange

The rollout, due to be completed this fall, will include the purchase of 150 new or upgraded AS/400s, which will push Apria's installed base to more than 200. Multiple offices in some areas will share one AS/400.

Running in parallel is a project to develop new client/server AS/400 applications using IBM's VisualAge tool and Smalltalk object language. Smalltalk versions of two corporate applications went into use in January, and branch offices should see programs with graphical user interfaces (GUI) and client-level processing potential late in the year, said John Farmer, vice president of information services at Apria.

Apria is part of a very small advance group of AS/400 customers that use object technology internally, according to industry watchers. "Typical AS/400 shops are pretty conservative. A lot of them aren't changing quickly" from the traditional green-screen terminal approach, said Tom Bittman, an analyst at Gartner Group, Inc. in Stamford, Conn.

Slow and steady

Not that Apria is spooning up huge doses of the new stuff right away. Cutting over to the object-oriented approach is "a multiyear process," with no definite end in sight, Farmer said.

The health care market "is changing dramatically, and that will have an impact on how fast we proceed," Farmer said. "But the applications we have today are serving our business very well. It's not like we have to get off them yesterday."

By using VisualAge, Apria hopes to gain faster turnaround times and the ability to reuse code. "There is tremendous pressure to reduce costs in the health care industry, and IS is a big part of the equation," he said.

He declined to specify either the money or the time that Apria hopes to shake out of its development process. But he noted that the two corporate-level applications went into production less than a year after Apria began working with VisualAge.

Apria wants to shift most processing to PCs and recast its AS/400s as database and network servers. For the near future, though, it is still looking to find a way to ease the burden on users who may have to switch between terminal mode and a GUI. "We're going to try to minimize that, but we need some more time to work it out," Farmer said.

Data warehouse fills CVS prescription

Pharmacy will also move to client/server

By Michael Goldberg
WOONSOCKET, R.I.

For the IS managers and business decision-makers at CVS/Pharmacy, building a data warehouse was more than an attempt to gain a strategic advantage — it was a matter of survival.

Before raising a data warehouse in 1993, CVS, a division of Melville Corp., was managing all the information from its chain of 1,400 pharmacies in the Northeast on an IBM mainframe using applications developed in the 1970s and early 1980s. It still has its mainframe, but it plans to eventually switch all applications to a client/server system that includes the data warehouse.

Howard Edels, MIS senior vice president, said CVS had nowhere else to go: Changes in the health care system made information that could cut costs vital. "This project is critical to this company's future," he said.

After completing the first phase of its data warehouse, CVS is already reaping just that kind of data, according to Edels.

For instance, CVS can now analyze when stores are busiest and which stores sell the most of what kinds of retail items and prescriptions, according to Shafi Shilad, MIS vice president for pharmacy systems. CVS can also verify HMO-based prescriptions on-line.

"In the old days, we would say, 'If your store has X amount of [total] sales, this is what you will carry,' or 'If you fill X number of prescriptions, this is what you will carry,'" Shilad said.

The data CVS is collecting and analyzing also helps set staff schedules, and Shilad is working on applications to control inventory store by store.

That's in the near term. Edels said CVS envisions being able to market specials to individual consumers based on their buying patterns, make more use of less costly generic drugs, send customers reminders about taking medicine that could keep them out of the hospital and even offer pharmacists' services for a fee.

Norton Greenfeld, president of

CVS' Howard Edels: *'This project is critical to [CVS'] future'*

Implements, Inc., a consultancy in Wayland, Mass., said CVS' project "is exactly typical" of strategic data warehouse projects. "There are enormous paybacks to being able to see the business in a way that you didn't before," he said.

Big news

Data warehousing and data mining — setting up large stores of data for strategic decision-support analysis — are hot topics these days. Hardware vendors that once focused solely on price/performance benchmarks are coming out with service programs tailor-made to help users unfamiliar with the territory to navigate their way.

In CVS' case, Edels said the project has cost unspecified millions of dollars for equipment and consultants, required eight

monthly meetings with management to detail the system's strategic importance and work challenges, and entailed hours of training for 100 IS staff and 35 end users. Edels said he is still looking for the comprehensive systems management tools that he likes so much on his mainframe.

For hardware, CVS chose Unix-based Nile symmetrical multiprocessing servers from Pyramid Technology Corp.

CVS uses an Oracle Corp. Oracle7 database system on a 10-processor Nile server. It has two dual-processor Nile servers for on-line transaction processing of prescriptions.

With its new data warehouse, *CVS can analyze when stores are busiest and which stores sell the most of what kinds of retail items*

PAIN

Managing

Go CIO

WALL STREET

Your very own subscription to The Wall Street Journal

Escape from cube land! You move to a tiny, airless, window-less office. But an office it is, by God.

Reorg alert! Reorg alert! Pull together a plan that justifies all your direct reports, and make it snappy.

The new CFO just adores cost justifications. LOSE A TURN while you work up some ROI numbers.

E-mail goes down. Executive information systems goes down. You're goin' down. To the HELP DESK, that is.

STOCK

Stock options

Two days after you argue passionately for sticking with the main-frame, *Computerworld* runs an article lionizing client/server. Spend a turn at the HELP DESK.

Two days after you ar-gue passionately for a move to client/server, *Computerworld* runs an article lionizing the mainframe. Spend a turn at the HELP DESK.

You hire an intern despite grave doubts. She creates a Web site that generates more hits than *Playboy's*. ROLL AGAIN, hero.

Uh-oh, your boss just read another trendy management book. LOSE A TURN while you bandage your feet after all that fire-walking.

We tried to think of something more random than corporate politics. All we could come up with was a game of chance. Pull a few compadres into your cube, and let the die decide who's on the fast track and who's destined to field help desk calls for life.

Help desk

Rules

1. Use one die.

2. Each player selects a GAME PIECE.

3. Roll die to determine playing order. Highest number goes first.

4. When you land on a space, follow the instructions on that space (such as ROLL AGAIN or LOSE A TURN). If the space has no instructions, your turn is over.

5. If you are sent to the HELP DESK, you have our sympathies. To exit the HELP DESK, roll the die. Your first move is to the space you landed on that sent you to the HELP DESK. If, when you leave the HELP DESK, you roll a 1, you don't have to return to the HELP DESK.

6. The first player to land on EXECUTIVE TRACK wins. You must roll exactly the right number to land on EXECUTIVE TRACK.

Start

Game pieces - clip and tape to a quarter

Octopus

eps a tentacle in
ery project, invited
not.
sets: Suction-cup
p on department
ings, surprising
eed.
ibilities: All those
bs sometimes get
ngled up where they
n't belong.

Brainiac

Can write code with one
cerebellum tied behind
his back.
Assets: Smart, smart,
smart.
Liabilities: Tends to sneer
at those less intelligent
than himself, which is
everybody. Often not
overburdened with social
skills.

Climber

Bound and determined
to make it. Will crawl
over bodies, including
yours, to do so.
Assets: Not weighed
down by pesky
conscience or sense of
teamwork.
Liabilities: Secretly
hated by all.

Schmoozer

To mask lack of knowledge,
spends most of the day
perched on the corner of
others' desks jabbering.
Assets: Loved by non-
techies in the company.
Liabilities: Usually absorbed
into Marketing or Corporate
Communications at mid-
career.

ck your duffel for
managers' retreat!
u gain a deeper
derstanding of your
ers, a renewed sense
purpose and a bad
se of poison oak.

My, my, annual
review time
already? LOSE A
TURN, lock yourself
in your office and
write "exceeds
expectations" 108
times.

February.
Conference.
Palm
Springs.
Life is good.

You get keys to the Executive washroom

After too many evening
classes and Saturdays
spent studying, you earn
an MBA. That diploma
ought to brighten up your
cubicle wall. ROLL AGAIN.

The company's senior
managers invite you along
for a round of golf. Just
make sure you don't win,
for crying out loud.

You know all those
disaster recovery books
you use as paperweights?
Well, they burn. Along with
the rest of the building.
Spend a turn at the HELP
DESK; you've got some
explaining to do.

Time for a major
systems upgrade. The
bad news: It's a pain in
the neck. The
good news: Vendors take
turns buying you lunch
for a month.

Executive track

_____ is the new
chief information officer at Hugex Corp.,
the Miami-based provider of sports cars,
golf clubs, beer and high-performance
hammocks.

_____ will be res-
ponsible for charting IS strategy, doling
out incisive quotes to an obedient trade
press and visiting Hugex offices in Aruba,
Paris and Oahu.

Hugex CEO J. Alfred Pushover angrily
denied published reports that
_____'s physical appearance
played any role in the promotion. "Sure,
_____ looks like a movie star;
that's a given. But _____
was hired on ability, pure and simple."

_____ will
report to Pushover. For now.

By Steve Ulfelder
Designed by Mary Beth Welch
Illustrations by Scott Matthews

The Quick and the Responsive

The prospect of being hanged concen-
trates a man's mind wonderfully. So
does the thought of being the next retail
chain to go bankrupt.

Faced with soft consumer spending and in-
tense price pressure, retailers are focusing
more heavily than ever on Quick Response
and Efficient Consumer Response (QR/ECR),
according to a recent survey. The survey was
conducted by Kurt Salmon Associates (KSA),
a consulting firm in Atlanta, and RIS (Retail
Information Systems) News, a publication
based in Randolph, N.J.

QR/ECR is an effort in the apparel and gro-
cery industries to cut the time and cost of
ordering, delivering and restocking products.

Retail chains, for example, might link their
point-of-sale (POS) systems to information
systems at manufacturers or distributors.
Retailers can automatically reorder products
when stock falls below critical levels and can
reduce the inventory they must hold.

The survey reported that 46% of buying
and merchandising managers are very com-
mitted to QR/ECR efforts, compared with only
20% at the same time last year.

Seventy percent of the manufacturers that
responded to the survey said they are in-
volved in joint QR/ECR efforts with retailers,
which indicates that retail chains are making
such systems mandatory for suppliers.

Tightening up the distribution chain also
means faster communication between POS
systems and ordering, inventory and ac-
counting systems. A full 90% of retailers and
manufacturers had begun such systems inte-
gration efforts by last year.

All this change isn't easy, but KSA Vice
President Peter Harding has some tips for
making it happen.

They include getting top management to
commit to change, establishing communica-
tion and education programs to create a cor-
porate climate for change, establishing per-
formance measures to reflect new corporate
priorities, and including all affected business
units in cross-functional teams to map out
the changes.

— Robert L. Scheier

If this is your hard drive,

Getting peak performance from your jam-packed hard drive just got a lot easier. With Travan™ minicartridge technology, you get a high-capacity, affordable personal storage management solution with uncompressed capacities from 400 megabytes to 4 gigabytes. You can easily off-load and reload seldom-used files, archive old information, transfer large documents and back up critical data. So your hard drive keeps operating at top efficiency. And so do you. It's one more reason why more businesses protect important information on 3M brand data storage products than on any other brand. Insist on 3M brand Travan minicartridges. Travan drives are available from Aiwa, Conner, Exabyte, HP Colorado, Iomega, Pertec, Rexon, Tandberg Data and Teac. For technical information, call 1-800-888-1889, ext. 2301. Or send e-mail to datastorage@mmm.com.

The Travan solution incorporates your computer, a Travan drive, uniquely shaped Travan minicartridges and software.

clean it up with the 3M™ Travan™ minicartridge solution.

3M *Innovation*

Ready, Provoke, Hire

Are the boneheads you've hired making life miserable? Chin up! These hiring tips will help you do better next time.

By Alan S. Horowitz

Managers are only as good as the people on their team, yet new managers often fumble their first hiring decisions. They're afraid.

"Life-threatening" is how Richard Lennon, vice president and chief information officer at Brown-Forman Corp. in Louisville, Ky., describes some new managers' view of strong, competent job candidates. These are competitors who, they think, want their job.

That's a mistake. The better your subordinates, the better your performance. A weak supporting cast forces you to work harder and increases your risk of failure.

Overcoming insecurity is the first step toward developing managerial skills at least equal to your technical ones. The next step? Don't hire in your own image. New managers typically come from the ranks of technicians. Since this is their claim to fame, they relate best to — and hire — those who are most technically competent.

Dan Roberts, president of Ouellette & Associates Consulting, Inc. in Bedford, N.H., divides information systems skills into three categories: "critical, important and nice-to-have." In-depth product and technical knowledge is nice to have, Roberts says, but enthusiasm, being a self-starter, communication skills and patience are critical.

Curiosity factor

Since technology changes as fast as Internet sites, technical knowledge has a shelf life akin to that of fresh strawberries, which is why Ron Griffin also downplays it. As senior vice president of information services at The Home Depot, Inc. in Atlanta, Griffin looks for employees with the aptitude and willingness to learn. He figures he can teach them technical skills later.

New managers, in their insecurity, tend to talk more than they listen, according to Roberts. You learn nothing about job candidates when you're talking. If you dominate interviews, shut up and start polishing your listening skills.

The computer industry is among the most dynamic of any, which makes learning ability a necessary skill for any IS employee. Ask the candidates what they have done during the past 12 to 24 months to upgrade their knowledge, such as reading books and attending classes and seminars. Have them recall one thing learned from each and how it helped their work. This reveals how interested the candidates are in learning and how much they retain, says Gopal K. Kapur, president of the Center for Project Management in San Ramon, Calif.

Part of learning is curiosity. Griffin tosses out a controversial statement to see if candidates take the bait. For example, he might say, "'I used to work at XYZ Corp., and one of the things I learned there was . . . which is why we don't do that here.'"

He's being provocative; he wants them to respond to the statement, not ignore it.

Lennon takes a somewhat different approach to testing people's interest in learning. He asks such common questions as "Where have you failed, and where have you done well?" and follows up with, "What did you learn from that experience?" What candidates learned is more important than what actually happened, he says.

Try the run-on interview technique. Ask three questions in rapid succession. For instance, fire off a technical question, a what's-important-to-you question and a tell-me-about-an-experience question. Don't provide any opportunity between questions for answers. This moves candidates out of their comfort zones, even if they've prepared answers to these questions. Griffin does this to gauge candidates' ability to listen, think and organize.

Request that a written summary letter be submitted the day of the interview or the next day. Don't mention this until the end of the interview. These letters reveal how well candidates listen, what is important to them and how well they communicate. Kapur, who uses this technique, says, "Before I marry these people, I want to know what their style of thinking is, how creative and thoughtful they are and if they are good listeners."

Know what you want and need before you start the hiring process. Look beyond technical skills to the candidates' personalities and desires. Only then can you choose those most likely to boost you to the ranks of the managerial elite. ∎

Horowitz is a freelance business and technology writer in Salt Lake City.

Push job candidates out of their comfort zone, says Ron Griffin, senior vice president of information services at Home Depot

KATHERINE LAMBERT

Hire-power reading

Ron Griffin, senior vice president of information services at Home Depot, recommends the following books for improving your hiring practices:

Stephen R. Covey's **The 7 Habits of Highly Effective People** (Simon & Schuster, 1989) and the book he co-wrote with A. Roger Merrill and Rebecca R. Merrill, **First Things First** (Simon & Schuster, New York, 1994)

Eric Harvey and Alexander Lucia's **Walk The Talk: And Get The Results You Want** (Performance Publications/Performance Systems Corp., Dallas, 1995)

Managing from the Heart by Hyler Bracey, Jack Rosenblum, Aubrey Sanford and Roy Trueblood (Delacorte Press, New York, 1990)

The better your subordinates, the better your performance, says Richard Lennon, vice president and CIO at Brown-Forman Corp.

ONE SWITCHING COM
THE MIGRATION HABITS OF

With all the new demands on networks these days, it's no wonder a lot of companies are flocking to switches.

But we're not talking about average switches here.

We're talking about switches from Madge — a $400+ million company that's one of the fastest growing in the entire industry.

The reason for all this growth is pretty simple.

Madge just makes a better switch.

Whether you're talking about ATM, Ethernet, Token Ring, or even WAN Access, Madge makes the best performers in the category. And this broad line of switches gives you more flight paths

PANY THAT'S CHANGING
.S. MANAGERS EVERYWHERE.

to the end-to-end networks of tomorrow.

Here's something else Madge has going for it.

Namely the only management software that can give you a bird's eye view of your entire switched network.

To find out more about the migration options available, call 1-800-25-Madge. Or visit our website at http://www.madge.com

The sooner you call, the sooner you can get your whole network to straighten up and fly right.

SEE US AT NETWORLD+INTEROP '96 BOOTH 3777

F.Y.I.

Webmasters vs. scoutmasters?

What happens to a company's distribu-
tors when it starts selling products on the
World Wide Web? Pessimists warn
that Web sales will drain
business from distribu-
tors, damage a com-
pany's credibility in the
distribution channel
and confuse custom-
ers. Optimists claim the
Web complements exist-
ing distribution channels and
lets vendors sell to customers it otherwise
wouldn't reach. A vote for the
optimists comes from an
unlikely source: The Pa-
triots Trail Girl Scout
Council. Each year
about this time, the
Boston-area group
sends more than 20,000
Girl Scouts door-to-door to
sell cookies. This year, the council
also is selling cookies on-line at
http://cookies.openmarket.com/GSstore.
Feza Oktay, chief financial officer of the
Patriots Trail Council, insists there's
no channel conflict.
Only about 1,000 boxes
have been sold through
the Web site since it was
established Jan. 23 —
not even a blip com-
pared with the 1.2 mil-
lion boxes of cookies the
Council has sold through tradi-
tional means since that date. Scout re-
search shows that 90% of the population
would buy Girl Scout cook-
ies if asked, but only 50%
are ever approached.
"There's a huge market
out there of people
who want to buy cook-
ies but never have the
opportunity," Oktay says.
Now that we have Netscape
Communications Corp. browsers on our
PCs, this means no cube-to-cube canvass-
ing by parents, right? — *Robert L. Scheier*

May Conferences

MANAGEMENT

IS Financial Benchmarking and Peer Analysis. Las Vegas, **May 1-3** — Contact: Financial Management for Data Processing, San Francisco, Calif. (415) 731-3706.

IT ExecuTrends '96: Managing Chaos in a Distributed Computing Environ-ment. Atlanta, **May 1-3** — Contact: Gartner Group, Inc., Stamford, Conn. (800) 645-6395.

Tracking Data on the Move: 1996 Information Integrity Conference. Atlanta, **May 5-8** — Contact: Unitech Systems, Inc., Naperville, Ill. (800) 950-5225.

Training Directors' Forum 12th Annual Conference. Tempe, Ariz., **May 5-8** — Contact: Conference reg-istration, Minneapolis, Minn. (800) 707-7792.

Getting Your Data in Shape: The Mar-athon Steeplechase. Miami, **May 6-8** — Fee: $995 to $1,495. Contact: Ash-ley Pearce, Gartner Group, Inc., Stam-ford, Conn. (800) 778-1997.

Interactive '96. Atlanta, **May 12-15** — Conference on interactive learning. Contact: Softbank Institute, Medford, Mass. (800) 348-7246.

Strategic Uses of Information Tech-nology. Stanford, Calif., **May 12-17** — Contact: Stanford Business School, Stanford, Calif. (415) 723-3341.

Business On-line '96. San Francisco, **May 13-15** — Contact: Giga Informa-tion Group, Cambridge, Mass. (617) 982-9500.

Application Development: 1996 — Last Stop Before 2001. New Orleans, **May 16-17** — Fee: $1,195 to $1,495. Contact: Gartner Group, Inc., Stam-ford, Conn. (800) 778-1997.

INDUSTRIES

Forum for Handheld Computing in Health Care. San Francisco, **May 8-10** — Contact: World Marketing Strate-gies, San Francisco, Calif. (415) 252-8008.

Toward an Electronic Patient Record

'96. San Diego, **May 11-19** — Contact: Medical Records Institute, Newton, Mass. (617) 964-3923.

Sixth International Conference on Flexible Automation and Intelligent Manufacturing. Atlanta, **May 13-15** — Contact: Georgia Institute of Technol-ogy, Atlanta, Ga. (404) 894-3068.

Competitive Investment Strategies: Establishing Market Dominance in a Converging Telecommunications In-dustry. New York, **May 16-17** — Con-tact: Pam Watson, ICM Conferences, Inc., Chicago, Ill. (312) 540-3856.

PCS Rapid Deployment Strategies to Capture the Mass Consumer Market. Dallas, **May 16-17** — Conference on personal communications services (PCS). Contact: IBC USA Conferences, Inc., Southboro, Mass. (508) 481-6400.

Successfully Implementing Object-Oriented Technology for Telecom, Cable and Wireless Companies Con-ference. Chicago, **May 16-17** — Con-tact: Global Business Research Ltd., New York, N.Y. (212) 366-3212.

USER GROUPS

1996 DataFlex Conference: DataFlex Means Business. Orlando, Fla., **May 6-8** — Contact: Data Access Corp., Miami, Fla. (800) 451-3539.

1996 Micro Focus User Conference. Orlando, Fla., **May 13-17** — Contact: Conference headquarters, Palo Alto, Calif. (415) 496-7356.

The Connect 1996 Annual Conference and Technical Seminars. Anaheim, Calif., **May 13-17** — User group con-ference for Texas Instruments, Inc. software. Contact: Connect, Chicago, Ill. (800) 867-4891.

OCSIG Spring '96 Conference. San Diego, **May 15-18** — Contact: Oracle Computer-Aided Software Engineer-ing Special Interest Group (OCSIG), Wilmington, N.C. (910) 452-7444.

Information Builders Users Meeting and Educational Conference. Orlan-do, Fla., **May 19-22** — For users of In-formation Builders, Inc. software. Contact: Information Builders, New York, N.Y. (212) 736-4433.

Global Developers Conference. Fra-mingham, Mass., **May 20-22** — For developers of file transfer protocol software. Contact: Registration, An-dover, Mass. (800) 767-2336.

TECHNOLOGIES

Ensuring Success with Your SAP R/3 Implementation. Washington, **May 1-3** — Fee: $695 to $1,595. Contact: American Institute Forum, New York, N.Y. (800) 345-8016.

Using the Internet for Research & Development and Data Collection. Nashville, **May 1-2** — Contact: Inter-national Quality & Productivity Cen-ter, Little Falls., N.J. (800) 882-8684, Ext. 5165.

Nastec '96. Orlando, Fla., **May 5-8** — Annual conference of the Association for Corporate Computing Technical Professionals, known as Naspa. Con-tact: Tracy Binsfeld, Naspa, Oak Creek, Wis. (414) 768-8000, Ext. 106.

HOT HAPPENING
Object World East. Boston, **May 5-9** — Contact: Object World Corp., Fra-mingham, Mass. (800) 241-4600.

Electronic Entertainment Expo. Los Angeles, **May 16-18** — Contact: MHA Event Management, Norwood, Mass. (617) 551-9800.

System and Network Administration Conference '96. New York, **May 20-23** — Contact: Miller Freeman, Inc., San Francisco, Calif. (800) 441-8826.

Digital Television & Internet Confer-ence and Expo. New York, **May 21** — Contact: *Convergence* magazine, Denver, Colo. (303) 393-7449.

CES Orlando: The Digital Destination. Orlando, Fla., **May 23-25** — Contact: Consumer Electronics Shows (CES), Arlington, Va. (703) 907-7600.

PODC '96. Philadelphia, **May 23-26** — The Association for Computing Ma-chinery's 14th annual symposium on principles of distributed computing (PODC). Contact: James E. Burns, Bell-core, Red Bank, N.J. (908) 748-2819.

SECURITY

Second Annual Information Security Conference. Chicago, **May 14-16** — Contact: CMP Trade Show & Confer-ence Services, Jericho, N.Y. (800) 808-3976.

Computer Audit, Control and Security Conference. Houston, **May 19-24** — Contact: Information Systems Audit and Control Association, Rolling Meadows, Ill. (847) 253-1545, Ext. 472.

In technology, there's a fine line between news and history.

This is news.

Ascentia P

Ascentia J

Power Tools

A clear improvement

Clear Process, a process charting and analysis program, is an excellent management tool

By Jeffrey Gordon Angus

CLEAR PROCESS
Clear Software, Inc.
Newton, Mass.
Price: $495
(800) 338-1759

Computing has not been kind to software that takes the middle ground. Low-end applications such as Claris Corp.'s ClarisWorks are popular because they're quick to learn. People buy supertankers such as Microsoft Corp.'s Word 6.0 because they do everything anyone could imagine. In-between applications, which try to balance essential features with ease of use, have struggled in the market.

I hope Clear Software, Inc.'s Clear Process will buck the trend. Clear Process supports the drawing of process flowcharts. The product is positioned among the easy-to-learn flowcharting of Visio Corp.'s Visio and the powerful decision-analysis process modeling of Lumina Decision Systems, Inc.'s Demos or High Performance Systems, Inc.'s Ithink. Clear Process also incorporates some analysis and modeling tools that are fairly easy to master. The result is a well-balanced product that can help planning managers expand their analytical capabilities.

The quick pick

Clear Software already has a competitive flowcharting program called All Clear. Clear Process uses All Clear to construct process flowcharts by using underlying templates.

The flowcharting program offers two ways to design flows: drag-and-drop and outlining. I like this flexibility because while some people are quicker using drag-and-drop tools, many prefer to write high-level code. Either way, the program is fast.

On my 50-MHz Intel Corp. I486-based machine that runs Windows 3.1, the program updated an edited flowchart very quickly using either method. Once you've created a flowchart, the program runs an analysis and provides spreadsheets that show calculated results for time, cost and other variables. This Microsoft Windows 95/Windows 3.1 program has done a good job of working like Microsoft's Excel; it uses many Excel command sequences for manipulating data in the worksheets.

In the database section of this analysis area (one of four sections), you inherit a column of process names from your flowchart. To these you can attach simple columns such as cost, time or cost per hour, or program more complex algorithms. If you dictate a path through the flowchart, the program will calculate and show you the results of that path.

And Clear Process has muscle. You can analyze individual paths or all possible paths in your flowchart. You can assign names to paths for easy replay and sequencing. You can have the system chart every possible path for your data flow and analyze all the paths.

You can assign probabilities for each branch of the path, by assigning your estimate of the percentage of likelihood that each result would happen. This capability supports elementary process simulations, and the program has just the tools to do that. For example, you can find the right balance between staffing the help desk with junior aides and add-ing senior technicians. You can use historical data to simulate the help desk process with different staffing levels, then measure wait-time averages and time spent per query. You also can figure out the least expensive way to meet a standard, such as answering 90% of all questions within four hours for less than $250.

The on-line help is much better than average, and the written docu-

Clear Process *flowchart creation helps managers analyze and choose the best course of action*

mentation is concise, well-organized and informative. The only improvement I can think of would be a more thorough index.

If you want to go beyond drawing flowcharts without investing more than 80 hours to master an industrial-strength business process redesign package, Clear Process offers 70% of the function of these packages for 10% of the required effort. ∎

Angus is a systems analyst at The Data Works Ltd. in Seattle.

$10,600

IS Manager's Bookshelf

Virtual Realities

Grenier and Metes provide a useful handbook for building virtual organizations

By William E. Eager

Ray Grenier is an expert on telecommunications and interactive work processes. George Metes, president of Virtual Learning Systems, Inc., works with organizations on human systems integration and distance learning.

Going Virtual is the pair's second book. It's an excellent guide for sponsors or leaders of a project to create a virtual organization. It's full of checklists, readiness assessments, potential pitfalls and barriers to success, and it's loaded with practical advice. The authors obviously have been there and done that. Their writing is dense and full of information. It's best digested, like rich food, a little at a time.

The first three chapters present the case for virtual organizations. These chapters are weak and fail to create a burning desire to plunge ahead.

Assuming you had that desire before you picked up the book, skip these chapters and proceed to the good how-to advice beginning in Chapter 4.

Chapters 4 through 8 address the people issues and soft skills needed to create a successful virtual organization. These chapters and Chapter 11, which deals with strategy, should be required reading for executive sponsors and project lead-ers. Chapters 9 and 10 describe the technologies needed to support a virtual organization. Chapters 12 to 22 are organized like a how-to manual around specific topics, such as developing an implementation plan, assessing organizational readiness, process re-engineering, building virtual teams and continuous learning processes.

Skim the material first, then go back and use the checklists and suggestions in each chapter as you encounter that challenge on your own virtual journey.

The epilogue is a good review of the authors' key points and addresses an important reality: Transitioning to a virtual organization is like redesigning an airplane while it's flying. Don't become so focused on your destination that you fail to keep the airplane up in the air. ∎

Going Virtual: Moving Your Organization into the 21st Century
By Ray Grenier and George Metes
(Prentice Hall Professional Technical Reference, Upper Saddle River, N.J.; 256 pages; $27.95, paperback)

Eager has been a chief information officer at four large companies in the past 19 years. He is a partner at CSC Consulting and Systems Integration in Cincinnati.

Bouncing Back

Ed Yourdon spins a more optimistic book on the future of the American programmer

CHARLIE SAMUELS

O verwhelmed by foreign competition and runaway technology, American programmers were reeling five years ago. Today, invigorated by the Internet, they're back on their feet.

So says Edward Yourdon, developer of the Yourdon Method of structured analysis and design, observer of the worldwide technology scene, consultant and author of 21 books, including *Rise & Resurrection of the American Programmer*, published last week by Prentice Hall.

News of the resurrection is especially welcome from Yourdon, whose 1991 book, *Decline and Fall of the American Programmer*, read like a pink slip for the traditional programmer.

The Internet has changed that by suddenly giving American programmers the edge over foreign contenders, Yourdon says. To take advantage, however, they must leave tradition behind and run with the new technology. Right now.

Kathleen Melymuka spoke with Yourdon at Kennedy International Airport in New York as he prepared to depart for conferences and speaking engagements in Munich, London, Brussels, Bogota, Lima, Lisbon, Brussels (again) and Luxembourg.

Rise & Resurrection of the American Programmer
By Edward Yourdon
(Prentice Hall PTR, Upper Saddle River, N.J., 318 pages, $26.95, hardcover)

Bouncing Back

CONTINUED FROM PAGE 93

CW: To put your new book in perspective, can you talk a little about *Decline and Fall*? In it you argue that developers — even those using newer tools such as Visual Basic — are in peril.

Yourdon: There are now a number of places around the world where very well-educated, English-speaking software people are very eager to get even a small slice of the pie. That's where people are doing the same kind of software development work we're doing at a third or a fifth or a tenth the price.

These are people with superb educations: Asian and Indian people who come here to school, stay five years or so and go back home. An Indian programmer making $3,000 a year could take a job from an American programmer making $60,000. [See the Feb. 26 and March 4 issues of *Computerworld* for more on Indian programmers.]

CW: But American programmers like to think there's something peculiarly American about great software design. Doesn't that play into this equation?

Yourdon: Certainly there are a whole bunch of software technologies where we have led the way, but sooner or later some of this becomes mature and stable and drops to the level of a commodity. If you're at the leading edge you're in great shape, but if you're developing payroll systems in Cobol or even Visual Basic, those are fairly well-understood commodities.

CW: Since *Decline and Fall*, what aspects of the situation have gotten worse?

Yourdon: Many of the overseas competitors have become more organized and more aggressive. Five years ago, India promoted itself as a source of cheap labor even if it wasn't always terribly good. Now, they are promoting themselves in terms of quality and productivity and talent.

Motorola is a classic case. Motorola set up a brand-new operation in India. They didn't have to deal with the problems we have of teaching new technologies, getting people to change sloppy methodologies and making drastic changes in the culture. They had the luxury of building a new culture.

They rented a building, hired 200 of the top people from the Top 5% of Indian computer science institutes, showed them Motorola technology and methodologies and said, "If you want to work here, play by these rules." In three years, they got themselves assessed at Level 5 on the [Software Engineering Institute] scale. Only a handful of organizations in this country are at Level 4 or 5.

CW: But overseas competition is threatening virtually all U.S. industries. Is there anything about the software industry that makes the situation particularly dire?

Yourdon: It doesn't require very much capital to get started. You just need a PC, a smart person and access to electricity. Anybody can buy a Pentium machine for $2,000 and get started. That has long been one of scariest parts of the software industry as compared to, say, the automobile or computer hardware industry.

CW: The good news appears to be the Internet. You think it can go a long way toward resurrecting the American programmer. Why?

Yourdon: So much depends on the whole telecommunications infrastructure that serves as the foundation for the Internet. Here [in the U.S.], it's pervasive. Every kid has access. You don't see that in other countries. Overseas, the Internet tends to be limited to universities, where you may need to ask permission to use it. People don't have it at home nearly as widely.

CW: What does that mean to the average programmer?

Yourdon: There are still a lot of Cobol programmers who see themselves as an endangered species. Five years ago I was telling them they had to become a lot more productive. A lot of them said that was not the problem; they weren't worried about Indian Cobol programmers who would work at a tenth the price as much as they were about younger Visual Basic programmers from this country who would

> *The message is that you're really responsible for your own career and professional development. If your company recognizes that need and cooperates, terrific. If they don't, you'd better do it yourself.*

work at half the price.

That's one area where I was wrong. The biggest competitive threat was not from overseas, but from Americans half their age and salary using a new generation of client/server tools.

Today, Cobol programmers are looking to see how they can get into Visual Basic and Delphi, but they should be looking to see what skills they can develop with regard to the Internet.

CW: Such as?

Yourdon: You can be a Netscape expert, specialize in security or some other angle. The most obvious is to become a webmaster, but any high school kid can learn to do that. The more exotic stuff like Java involves skills the average programmer can appreciate, and not any high school kid can write a Java program.

To the extent you learn to do that, it opens terrific opportunities, but other countries will catch up. There are people who are extraordi-

narily talented all over the world at a lower price.

CW: What if I've spent the past two years becoming a Visual Basic guru? I could argue that those skills play to client/server now, and Bill Gates says Visual Basic Script will play on the Internet as well.

Yourdon: Yeah, but it's too early to tell. Certainly Java has 99% of the media attention. Visual Basic will be a contender, and there will be other contenders as well: Delphi, PowerBuilder and Smalltalk. Whatever skills you've been focusing on, the vendors will be providing enhanced versions for the Internet. That's where you ought to be moving your skills.

There's a lot of stuff you can do on your own. When you get home, you can turn on your PC and dial up a lot more easily than most people throughout the world. You can become a Java master, and if you can't persuade your company to adopt new technology and you see them getting more stagnant in older client/server technology, then you'll be prepared to jump to another company.

CW: As I read your advice, it's to jump in and make yourself an Internet expert regardless of your employer's take on the 'net.

Yourdon: That's part of a broader bit of career advice worth mentioning. I've been hearing from people since the earlier book, and [they say] employers blame the employee for becoming useless. They dump them because they're obsolete, and the employee feels betrayed because the company didn't keep his skills current. That's a miserable position to be in.

The message is that you're responsible for your own career and professional development. If your company recognizes that need and cooperates, terrific. If they don't, you'd better do it yourself. The biggest thing on the horizon is the Internet. Run with that even if your company is way behind you. ∎

Melymuka is a freelance writer in Duxbury, Mass.

GARY WAKEFIELD DOESN'T CARE IF YOUR SYSTEM IS MADE UP OF HP, IBM, MICROSOFT, NOVELL, ETC.

HE WILL MAKE IT WORK.

Gary Wakefield - Global Support Account Manager

He's one of over 17,500 HP service specialists worldwide. And even if your computing environment consists of different hardware, software and networks, Gary and his team are there to take care of it.

Choosing just the right services is critical. That's why HP Service and Support is designed entirely around your system, rather than around our hardware. For more

information, fax us at 1-800-437-9142, or visit our Web site at http://www.hp. com/go/4service.

HP works on your side.

**HEWLETT®
PACKARD**

Computer Careers

WANTED: One company to assume responsibility for one complete, experienced IS department.

Position available immediately. Must be willing to relocate to Redding, Calif.

By Candee Wilde

In this era of re-engineering and restructuring, Simpson Paper Co.'s planned downsizing would hardly be exceptional — if it weren't for the remarkable response of information systems employees when they learned their jobs were at risk.

Rather than individually updating their resumes into a venture into the job market, Simpson Paper's 70-person IS department has created a group resume. They hope it can lure to the rural community of Redding, Calif., an employer in search of a complete IS department.

The IS department organized a point group, called Team 2000, which has posted "employer wanted" information on the World Wide Web. The site contains details about its goals and skills and the special attractions of the community, which is located about 150 miles north of Sacramento, Calif.

"We want to market ourselves as a group, not as individuals," explains Renee Anderson, an IS project manager and core member of Team 2000. "We don't really want to find individual jobs. We want to attract something bigger than we could as individuals."

The downsizing is the result of Simpson Paper's decision to sell some of its units, which will let the Seattle-based company focus on its core business. The number of layoffs or the time frame for the downsizing is uncertain. The management at Simpson Paper is supportive of the group's effort and optimistic about its success.

"Although our new strategic direction will likely prevent us from utilizing all of our current employees, we are confident that their skills and innovation will compel businesses to strongly consider this area of the state for future growth," said Jon Irwin, vice president of Simpson Paper. "We believe that the talents and enthusiasm of the Team 2000 members will pave the way for a bright future for them and for the Redding area."

Executive recruiter Richard Wonder says he has never heard of such

a large group of people teaming up to cope with pending layoffs.

"I think it's very creative," says Wonder, founder of The RWA Group in New York. He says Team 2000 might find its best chance of being hired en masse with an IS consultancy that is interested in opening a branch office. Finding several dozen potential analysts or consultants who are looking for work simultaneously provides a very rare opportunity to start a business quickly, he says.

In the meantime, the IS employees have come up with a few strategies of their own. In the past few

weeks they have done the following:
- Surveyed the entire department to find out the skills they collectively possess and which ones they need to be marketable.
- Chosen volunteer instructors to lead classes in technologies and programming languages for co-workers who want to develop new skills.
- Organized the Team 2000 point group, whose mission is to attract a new employer to their community.
- Gained permission from company management to rally the cooperation of other departments, local residents, economic development organizations and state agencies.

- Created a site on the Web.
- Prepared press releases for government agencies, industry groups and individual companies in industries that might consider setting up shop near Redding.

Team 2000's efforts began about a week after the restructuring was announced. A handful of people in IS prepared a survey to find out which skills the people in the department had. They also called recruiters and read help wanted ads in computer trade publications to find out which technologies were hot in the job market, according to Al Kiser, a senior project manager who is spearheading the training program.

The skills classes, which will be taught by volunteers from the department, will focus on Windows NT, Unix, and Microsoft Corp.'s Visual Basic, Kiser says. So far, 39 people have signed up for training.

Now that Team 2000 has made contacts with state and local agencies, the next step is national publicity. Press releases will be part of that strategy. But the cornerstone in their effort is the Web site.

Should it fail to attract a new employer, Team 2000 is exploring the possibility of acting as an IS satellite office for a company located elsewhere. Another possibility: set up shop as consultants and contractors and offer IS services to a range of clients.

With the help of employees who may be laid off from sales, marketing and other departments "it's almost a whole business we can come together to offer," says Dolores Bielle, a supervisor and senior technical analyst, who is also part of the Team 2000 group. ■

Wilde is a freelance writer in Easton, Conn.

RESUME OF TEAM 2000

Internet address: http://www.snowcrest.net/team2000/index.html
E-mail address: Team2000@snowcrest.net.

POSITION SOUGHT: The opportunity to offer an employer the combined talents of many IS professionals currently in the paper products and manufacturing industry.

TECHNICAL SKILLS. The team has experience in the following areas:
- Multiple platforms: Unix, 370 architecture, VMS, DOS, Windows, AS/400.
- Telecommunications and networking.
- PC training and support.
- Multiple SQL databases: Informix, RDB, Access, SQL Server, DB2, Progress, Lightship Server.
- Object-oriented programming.
- Client/server development.
- Ability to support nationwide and international manufacturing, sales and distribution network.
- EDI, voice, executive information systems.
- Help line, second-level technical support.

RELATED ASSETS. The team has benefited from Shasta County's:
- Educated, skilled workforce.
- Inexpensive utility costs.
- Low property costs.
- Enterprise Zone status, with tax incentives to draw new employers.
- Voted in the Top 10 places to live or work in *Expansion Management* magazine, March 1996 issue.

9 years old

Selling Your *Soft* Side

Technical skills may still get you in the door, but it's the people skills that will win you the job

By Rosemary Cafasso

You're an IS professional shooting for a job at Cigna Corp. as an applications development project leader.

You've rehearsed your answers to questions you thought would be asked, and you can even draw diagrams to show your programming skills. Then Tom Vines, vice president of human resources for Cigna, leans across the table and asks you to describe the team on which you recently worked.

Here's a hint: He's not particularly interested in the coding details.

"The conversation can tell you if they've had experience building teams, including complex teams with a lot of interpersonal issues," Vines says. "It will give you an idea of how sensitive they are."

Sensitive? This is an information systems job, right? Right. Increasingly, IS professionals must demonstrate people skills if they expect to win a new position or land a promotion.

Not just the icing

IS managers say people skills, once a nice extra in the IS world, are now a core requirement. Managers are on the hunt for people who can interact well with users, understand business issues, explain processes clearly and concisely, listen carefully and foster partnerships with colleagues and users.

"We are looking for people who can work hand in hand with the people in business areas," says Bob Typanski, manager of data access services at Bayer, Inc. in Pittsburgh. "We are looking for people who haven't been just programmers."

When it comes to these soft skills, there are two potential snags for many IS professionals. First, people skills are not always easy to demonstrate. Second, people skills, to a great extent, are an outgrowth of personality. Some people are just more outgoing than others.

But hiring managers and consultants say there's good news on both fronts. To begin with, managers say there are no big secrets in demonstrating soft skills. They say the winning approach

is to stay focused on how the IS process affects users, the organization and the business overall. They also insist that basic people skills can be developed — even by classic IS nerds.

For IS professionals in the job market, the key to selling soft skills comes down to the job interview. Work experience that is focused on people and organizational issues, such as team management or any end-user support position, obviously helps. But hiring managers say the way job candidates describe their experiences is as important as the experience itself.

Winning answer

To illustrate the point: Say two job applicants have been IS team leaders. In an interview, each is asked to discuss a project that the team completed. The first applicant talks about the work itself — the coding, the deadlines, the actual system the group developed. The second candidate discusses the system and also summarizes how he assembled the team, worked to build morale and got the team working as a cohesive unit.

The two applicants are both highly qualified. But the second one demonstrated a sensitivity to people and organizational issues. The first applicant missed that boat entirely.

"When I ask a person to describe something, such as 'What course did you like and why,' and they just say, 'Taxes. Got an A,' that is not the way to answer that question," says Mike Huiatt, manager of financial systems administration at Tesoro Petroleum Corp. in San Antonio.

Instead, Huiatt wants to listen to people talk so he can get a glimpse of who the person really is. "They don't have to be the most polished," he says. "They do have to have communication skills."

At Cigna, Vines says he will ask questions as direct as: "Give me an example that demonstrates your self-confidence."

In fact, Cigna is working with a redesigned interview process that reflects this need for communications and other nontechnical skills. The Philadelphia-based company, which started the project two years ago, now works with a "leadership competency model" that helps hiring managers evalu-

ate IS candidates based on a series of required skills. These include self-confidence, analytical thinking, organizational awareness, organizational commitment and interpersonal understanding.

Managers say the first step is to make a concerted effort to pay attention to people at work — colleagues as well as end users. That sounds insultingly obvious, but managers say many IS professionals are so caught up in their techie worlds that they can truly be unaware of organizational issues around them.

Learn from others

Other recommendations from managers include training classes, seminars and adult education courses that focus on personal dynamics, relationships and public speaking. And one tactic that doesn't cost a dime: Ask a manager to identify someone on staff they think is a strong communicator. Then watch that person and do your best to imitate him.

Take the case of Phil Webster, a self-described techie who is MIS manager at Accugraph Corp., a software company in El Paso, Texas. Webster was promoted to his current post in 1994 despite being "very green," he says. "I didn't have much knowledge on how to actually deal with people."

But throughout 1995, Webster says he practiced the basics — letting people speak before he responded, listening carefully, learning to explain an IS plan without the jargon and "learning to say no politely."

"He's blossomed beyond a techno-guy," says Dennis McGinn, CEO at Accugraph. "It's an issue of trust. You need someone who can help you. You need someone who is a consultant to you, not just someone who is going to wire something into the wall."

Webster was reluctant to pat himself on the back, but he did note that he is "more polished" now. "You need to listen to your own emotions and try to listen to others," he says.

"When you have an effect on someone, try to understand what went wrong and try not to let things fester. There will always be people that you don't get along with, but you try to get along, for the good of the company."

Soft in the head?
Soft skills hiring managers look for

- Willingness to listen.
- Ability to explain an IS process concisely.
- Ability to discuss issues; degree in nontechnical subjects such as marketing a plus.
- Ability to discuss technology in nontechnical terms.
- Ability to convey knowledge of business issues.
- Demonstrated ability to resolve conflict.
- Desire to adapt and be flexible to end-user requirements.

Source: IS managers and industry consultants

"The conversation can tell you if they've had experience building teams, including complex teams with a lot of interpersonal issues. It will give you an idea of how sensitive they are."
— *Tom Vines, Cigna*

I'm sorry, that answer is incorrect

IS managers and consultants say it's amazing how badly some folks can behave in an interview.

Andy Gale, chief operating officer at Landa Corp. in Portland, Ore., still remembers his search for an IS manager five years ago. One fellow, he says, "was just an absolute piece of work." He bragged in the interview about his intelligence and then "went behind my back and contacted our [hardware] supplier and told them he was our finalist." That maneuver cost him the job.

Michael Foley, a regional recruiting manager at The Registry, a consulting and job placement firm in Newton, Mass., recalled one job candidate who couldn't keep his mouth shut. "I could not get a word in," Foley says. "He was interrupting me when I was talking. My interpretation was [that] if I put him on a project, he would do that. That wouldn't fly at all."

MIS Software Engineer - Design, develop, test & implement integrated client-server database for management information systems and manufacturing applications under a UNIX operating system using Sybase, Oracle, PowerBuilder, Visual Basic, C/C++, Microsoft Access and object oriented methodology. Perform data analysis using object-oriented analysis techniques. Design, develop, test & implement industrial engineering application-based simulation products using tools such as SIMAN and SLAM. Consult with end users and customize applications based on user input. Direct efforts of software programmers and programmer/ analysts in the design, development & implementation of the software applications. Some projects may be performed at client sites in various geographic locations. Must have a Master's degree in Management Information Systems or Industrial Engineering. Must have completed at least one course in each of the following areas. 1)UNIX; 2)Database Management Systems; 3)Business Databases; 4)Computer Integrated Manufacturing; & 5) Simulation. Must have completed one academic or on the job computer integration project in each of the following: 1)Object Oriented Methodologies; 2)C or C++ Language; & 3)Simulation. Must have six months of experience in the job offered or as a Research Associate. Experience as a Research Associate must have included establishment of computer network and database design and development using Sybase and Microsoft Access, Visual Basic or PowerBuilder. (The requirement of 6 months experience may be satisfied on the basis of a 20 hour work week for 12 months). 40hrs/wk, 9:00am - 5:00pm. $44,000/yr. Must have proof of legal authority to work permanently in the U.S. Send resumes to Illinois Department of Employment Security, 401 South State Street - 3 South, Chicago, IL 60605, Attn: RUTH DANIELS Ref# V-IL-14037-R. NO CALLS. AN EMPLOYER PAID AD - SEND 2 COPIES OF BOTH RESUME & COVER LETTER.

PROGRAMMER ANALYST (2 Openings (Ref.#44596): Plan, develop, test and document computer programs, apply knowledge of programming techniques and computer systems; evaluate user requests for new or modified programs to determine feasibility, cost and time required, compatibility with current system and computer capabilities; consult with users to identify current operating procedures and clarify program objectives; formulate plan outlining steps required to develop program using structured analysis & design; convert project specifications, using flowcharts & diagrams into sequence of detailed instructions & logical steps for coding into language processable by computer; apply knowledge of computer programming techniques & computer language. Analysis, design, development, implementation and maintenance of application systems that form Graphical User Interface (GUI) using Visual Basic, Power Builder, Oracle 7.0 and Sybase System X and also using Windows 3.1, Windows Communication Library, DB2, IBM 3090, Microsoft Access 2.0, Microsoft SQL Server 4.2, IBM 3270 Emulator, NetSoft Dyna Comm Elite and OS/2. Reqs: Bachelor degree in Comp. Science, Systems Analysis, Comp. Info. Systems, Comp. Engineering, Electrical Engineering, electronic Engineering, Mathematics or its equiv. in ed. & exp.; 1 yr. exp. in job offered or 1 yr. exp. in a related occup. such as Programmer, Programmer Analyst, Systems Analyst, Software Engineer, Consultant or Software Consultant. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or in related occup. in lieu of the required ed. & exp. Must have some related experience in design, development and implementation and using each of the following: Sybase System X, Power Builder, Visual Basic and ORACLE 7.0. 40 hrs/wk, 0:30a-5:00p, $40,600/yr. Send resume to 7310 Woodward Ave., Rm, 415, Detroit, MI 48202, & include Ref. # "Employer Paid Ad"

PROGRAMMER ANALYST (2 Openings) (Ref# 41796): Plan, develop, test and document computer programs, apply knowledge of programming techniques and computer systems, evaluate user requests for new or modified programs to determine feasibility, cost and time required, compatibility with current system and computer capabilities; consult with users to identify current operating procedures and clarify program objectives; formulate plan outlining steps, required to develop program using structured analysis & design; convert project specifications, using flowcharts & diagrams into sequence of detailed instructions & logical steps for coding into language processable by computer; apply knowledge of computer programming techniques & computer language. Analyzing, designing, developing client server applications on MS-Windows using databases ORACLE, MS-SQL Server, DB2 and analyzing, designing, developing and implementing computer applications using MS-Windows, MS-DOS, VAX/VMS, Visual Basic, MS-SQL, SERVER, ORACLE, SQL FORMS, ODBC, C, Windows-SDK, C++, CRYSTAL REPORTS and FORTRAN. Reqs: Bachelor's in Comp. Science, Systems Analysis, Computer Info. Systems, Computer Engineering, Electrical Engineering, Electronic Engineering, Mathematics or its equiv. in ed. & exp.; 2 yrs. exp. in job offered or 2 yrs. exp. in related occup. such as Programmer, Programmer Analyst, Systems Analyst, Software Engineer, Consultant or Asst. Systems Analyst. Will accept 3 yrs. college ed. plus 3 yrs. exp. in the job offered or in a related occup. in lieu of the required ed. & exp. Must have some related exp. which includes analyzing, designing, developing and implementing software application systems and using each of the following: Visual Basic, Microsoft SQL SERVER, ORACLE, WINDOWS SDK, C++, VAX VMS, 40 hrs/wk, 8:30a-5:00p, $46,200/year. Send resume to 7310 Woodward Ave, Rm 415, Detroit, MI 48202, & include Ref.# "Employer Paid Ad"

Computer Scientist - Glenwood, MD for mechanical verification of MC68020 object code implementations of C programs using the Boyer-Moore theorem prover. Verify trusted operating systems code for correctness by writing tests in C++ and by participating in formal code walk throughs. Write papers and participate in writing proposals for research. Build prototypes for secure systems. 9:00-5:30. M-F. 40 hrs/wk. $58,140/yr. Require Ph.D. in Computer Science. M.S. in Computer Science or Mathematics as well as two years experience in job offered or as Systems Architect required. PhD thesis must be in formal methods. Must possess expertise in using Boyer-Moore theorem prover, which may be demonstrated by producing theorems actually processed by the prover. Upto 100% travel possible. Mail two copies of resume and copy of ad to: Department of Labor, Licensing and Regulation, 1100 N. Eutaw St., Room 212, Baltimore, MD 21201. Job Order #9578324.

Project Leader, 40hrs/wk. 9am - 5pm, $42,500/yr. Lead projects in the design & development of employee scheduling packages for the retail industry. Apply intelligent optimization techniques. Modify/port backend database engine & design graphical user interface as front-end using object-oriented methodology. Tools: Windows; MS Visual C++; C/UNIX. M.S. in Computer Science or Mathematics as well as two years experience in job offered or as Systems Architect required. Previous experience must include software development with Windows & C/UNIX. Graduate education or experience must include: Computer Graphics; Computer Communication Networks; one project on object-oriented database. Must have proof of legal authority to work permanently in the U.S. Send two copies of cover letter & resume to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 3 South, Chicago, IL 60605, Attention: Len Boksa, Reference #V-IL-14605-B. NO CALLS. An Employer Paid Ad.

SOFTWARE ENGINEER. (2 positions) 40 hrs/wk. 8 a.m. - 5 p.m., $54,910/yr. Carry out requirements definition, systems analysis, systems design, coding and testing of application systems on IBM m/f and Unix environment utilizing DB2, COBOL, ORACLE, C. Reqr. Bachelor's degree in Computer Science or Electrical or Mechanical Engineering or equivalent*. *Equivalent includes 8 yrs. of expr. in job offered or related occupation, in lieu of bachelor's degree and 4 yrs in job offered or related occupation. Reqr. 4 yrs. expr. in job offered, or 4 yrs. expr. in Systems Analysis &/or Development &/or Software Engineering &/or Computer Consulting. Reqr. work expr. in dev. of s/w systems on IBM m/f and Unix environment with DB2, COBOL, ORACLE and C s/w. Employer is a s/w development/consulting firm. Relocation to client sites throughout the U.S. for periods of 6 mos. to 2 yrs. required. *Employer paid ad.* E.O.E. Send resume to: 7310 Woodward Ave., Rm 415, Detroit, MI 48202 Ref. No: 15496.

Senior Consultant, 40 hrs/wk, 9am-5pm, $42,000/yr. Analysis, design, development & testing of management information system. Application of object-oriented technology, client/server technology & expert systems technology. Tools: C; C++; SQL; UNIX; Reportwriters; Ingres; VAX/Open VMS; BASIC; Uniface; ORACLE. B.S. in Computer Science* as well as 2 yrs exp in job offered or as Project/Research Assistant required. (*B.S. degree in any engineering field + 2 yrs in software programming acceptable in lieu of B.S. in Computer Science.) Previous exp must include: C; C++; ORACLE; UNIX; VAX/VMS; GUI development or GL on IRIS. Must have proof of legal authority to work permanently in the U.S. Send two copies of both resume and cover letter to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 3 South, Chicago, IL 60605, Attention: Joan Sykstus, Reference #V-IL-14796-S. NO CALLS. An Employer Paid Ad.

SOFTWARE ENGINEER required. System design, software development & applications testing on UNIX & PC platforms including extensive coding in C++, Shell Programming & development of Object Oriented & Relational databases. Design GUI's using X-Windows, PowerBuilder & Visual Basic & knowledge of 2 & 3 dimensional computer graphics. Develop Client/Server applications using UNIX Interprocess Communications (IPC) & concurrent processing techniques. Masters Degree or its equivalent required in Math, Computers or Engineering, plus 1 year experience in the job duties described above. University work experiences (other than mere classroom study) may be used to satisfy the experience requirements. Must have proof of legal authority to work in the U.S. Salary - $41,000/year for a 40 hour work week. Apply at the Texas Employment Commission, Fort Worth, Texas, or send resume to the Texas Employment Commission, TEC Building, Austin, Texas 78778-0001, J.O. Number TX7505277. Ad paid by an Equal Opportunity Employer.

PROGRAMMER/ANALYST: (2 positions) 40 hrs/wk. 8 a.m. - 5 p.m., $41,610/yr. Carry out the systems analysis, systems design, coding and testing of computer software application systems on IBM mainframe utilizing COBOL and a database (DB2 or IMS/DB or ADABAS), and EASYTRIEVE. Reqr. Bachelor's degree in Computer Science or Electrical or Electronics or Mechanical Engrg. Reqr. 2 yrs. expr. in job offered, or 2 yrs. expr. in Systems Analysis &/or Programming &/or Computer Consulting. Reqr. work expr. in dev. of s/w systems on IBM m/f and with COBOL, DB2 (or IMDS or IMS/DB, or ADABAS), and EASYTRIEVE. Employer is a s/w development/consulting firm. Relocation to client sites throughout the U.S. for periods of 6 mos. to 2 yrs. required. "Employer paid ad." E.O.E. Send resumes to: 7310 Woodward Ave., Rm. 415, Detroit, MI 48202. Ref. No: 22296.

SOFTWARE ENGINEER. (2 positions) 40 hrs/wk. 8 a.m. - 5 p.m., $56,000/yr. Carry out the systems analysis, systems design, coding and testing of computer software application systems on IBM m/f environment utilizing IDMS and COBOL. Reqr. Bachelor's degree in Computer Science or Electrical or Mechanical Engineering or equivalent.*. *Equivalent includes 8 yrs. of expr. in job offered or related occupation, in lieu of bachelor's degree and 4 yrs expr. in job offered or related occupation. Reqr. 4 yrs. expr. in job offered, or 4 yrs. expr. in Systems Analysis &/or Programming &/or Software Engineering &/or Computer Consulting. Reqr. work expr. in dev. of s/w systems on IBM m/f and with COBOL and IDMS (or DB2 or IMS-DB) s/w. Employer is a s/w development/consulting firm. Relocation to client sites throughout the U.S. for periods of 6 mos. to 2 yrs. required "Employer paid ad." E.O.E. Send resumes to: 7310 Woodward Ave., Rm. 415, Detroit, MI 48202. Ref. No: 42696.

Consultant, 40hrs/wk., 9am - 5pm, $41,600/yr. Design, development, implementation & testing of software for business & scientific applications. Systems administration. Tools: UNIX/AIX; VAX/VMS; MS-Windows; Sun-OS; MS-DOS; TCP/IP; C; C++. M.S. in Computer Science as well as two years experience in job offered or as Programmer Analyst required. Previous experience must include: systems administration; C; UNIX; VAX/VMS. Graduate education must include one design project using C++. Must have proof of legal authority to work permanently in the U.S. Send two copies of cover letter & resume to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 3 South, Chicago, IL 60605, Attention: Janet Aschenbrenner, Reference #V-IL-14798-A. NO CALLS. An Employer Paid Ad.

PROGRAMMER/ANALYST: (2 positions) 40 hrs/wk. 8 a.m. - 5 p.m., $42,940/yr. Carry out the systems analysis, systems design, coding and testing of computer application systems on IBM AS/400 environment utilizing RPG/400, CL/400 and QUERY/400. Reqr. Bachelor's degree in Computer Science or Electrical or Mechanical Engineering or equivalent. Reqr. 2 yrs. expr. in job offered, or 2 yrs. expr. in Systems Analysis &/or Programming &/or Computer Consulting &/or Trainee. Reqd. work expr. in dev. of s/w systems on IBM AS/400 environment with RPG/400, CL/400 and QUERY/400. Employer is a s/w development/consulting firm. Relocation to client sites throughout the U.S. for periods of 6 mos. to 2 yrs. required. "Employer paid ad." E.O.E. Send resumes to: 7310 Woodward Ave., Rm. 415, Detroit, MI 48202. Ref. No: 19996.

Systems Analyst - client sites in metro Chicago, IL; Co. loc in Lisle, IL. Analyze, design, develop & implement software tools using object-oriented analysis & design methodology. Provide technical support. Utilize C/C++, Windows NT, Visual Basic, UNIX & OOA&D, Case Tool Paradigm Plus. Bachelors/Engg, Comp Sci or Math. 2yrs/exp. in job offered or 2yrs as Engnr &/or Applic Prog &/or Prog/Analyst. Must have 2yrs/exp. using C/C++ Windows NT, Visual Basic & UNIX & 6mos/exp. using OOA&D, Case Tool Paradigm Plus. 40hrs/wk (8-5; M-F) $55,000/yr. Must have proof of legal authority to work permanently in the U.S. Send 2 copies of both resume & cover letter to: Illinois Dept. of Employment Security, 401 South State St. - 3 South, Chicago, IL 60605. Att: Janet Aschenbrenner. Ref. # V-IL 14912-A. AN EMPLOYER PAID AD. NO CALLS.

CAREER SURVEY: Financial analysis/management Software

INDUSTRY HIRING TRENDS

OVERALL GROWTH RATE 8.8%

- 70.4% STABLE
- 18.3% GROWING AT LESS THAN 25%
- 11.3% GROWING AT MORE THAN 25%
- .0% SHRINKING

SURVEY BASE: 71 TECHNOLOGY FIRMS INVOLVED IN FINANCIAL ANALYSIS/MANAGEMENT SOFTWARE

SURVEY CONDUCTED BETWEEN NOVEMBER '95 AND MARCH '96;

© Copyright 1996, Corporate Technology Information Services, Inc., Woburn, Mass

REGIONAL GROWTH ANALYSIS

Region	Growth
NEW YORK METRO	59.5%
EASTERN LAKES	20.8%
NEW JERSEY & DELAWARE VALLEY	17.4%
SOUTHWEST U.S.	12.4%
MID-WEST U.S.	8.8%
NORTHWEST U.S.	5.4%
SOUTHERN CALIFORNIA	2.5%
NEW ENGLAND	1.9%
SOUTHEAST U.S.	1.1%
GREAT LAKES	.9%
CENTRAL U.S.	.6%
MID-ATLANTIC	.0%
NORTHERN CALIFORNIA	.0%

CORPTECH, A DIRECTORY PUBLISHER IN WOBURN, MASS., TRACKS THE U.S. 40,000 TECHNOLOGY MANUFACTURERS. THIS SURVEY RELATES TO THE 31,060 TRACKED FIRMS WITH FEWER THAN 1,000 EMPLOYEES.

Marketplace

Attendees to scout out NT, ATM and the Internet

NETWORLD+INTEROP 96

By Lynn Haber

Every day, companies bet their business on their networks. That's why more than 50,000 information technology professionals are expected to gamble on the Networld/Interop '96 conference and exposition, to be held this week in Las Vegas.

Gurus of the computer and telecommunications industries will address networking issues and concerns that range from the desktop to the LAN, the WAN and the information superhighway.

The conference portion of the event centers on five subjects: computer/telephone integration, network connectivity, Asynchronous Transfer Mode (ATM) and switched networks, enterprise applications and "practical internets."

But with explosive interest in the Internet coming from all industries, show sponsor SoftBank Expos is launching a companion event, Interop DotCom, to be held April 2-4. Interop DotCom will feature Internet business applications and services.

Asked what draws them to Networld/Interop, some managers pointed to technologies and products such as Microsoft Corp.'s Windows NT, Novell, Inc.'s NetWare and ATM. Their comments follow:

RON PATTERSON
Systems analyst at Shell Canada in Calgary, Alberta
"My focus will be narrow," Patterson says. With Shell Canada moving to NT servers from its current NetWare platform, Patterson will be hunting for NT information at the seminars and on the show floor.

Shell is upgrading its Windows 3.1 environment, moving entirely to workstations that use Windows NT on the desktop. Patterson said he will look for NT systems management utilities and backup applications. "I'm not impressed with Microsoft's System Management Server for our environment," Patterson says. The product, he notes, isn't robust and doesn't handle failure well. He says he plans to have 500 of 4,000 network nodes up and running by year's end.

DARRYL GARLAND
Senior telecommunications technician for the city of Tulsa, Okla.
Garland says he'll be soaking up as much information on ATM as he can. The city recently entered into a contract with its local cable TV provider that will enable it to string optical fiber for upgrading its network. Today, the city has 7 or 8 miles of fiber connecting a handful of municipal offices. That will increase over the next few years as all municipal buildings migrate to the fiber backbone.

Garland says he will also focus on technology changes in products such as bridges, routers and hubs at the show.

DALE OLSON
Network administrator at Deere & Co. in Moline, Ill.
Olson says he will attend seminars on the Internet's Domain Name System (DNS) and client/server technology.

"We run DNS and [Sun Microsystems, Inc.'s Network Information Services] in our system, and it's pretty solid technology. But when you get into trouble, you don't

CONFERENCE watch

find a lot of information on it," he says.

Olson says he's interested in packets and ports and what's going on in the network. "We're doing a three-tier client/server type of implementation," he says.

Olson says he also will look for hardware and systems and communications software. "We recently moved to [a Fiber Distributed Data Interface] backbone, and we're running fiber to the floors and 10M bit/sec. Ethernet on the floors," he says.

Another attraction for him will be systems software for the operations center, he says.

MARK TASELSKI
Design manager at JR Automation in Holland, Mich.
With his company in the process of setting up a World Wide Web server and electronic-mail system server, Taselski says he's hoping to get some good information out of the seminars "Linking the Unbounded Office" and "Keeping the Corporation Safe from Intruders."

"We also have plans to implement Lotus Notes so we can communicate on projects," he says. For that, Taselski says he'll go to a seminar called Notes Arrives. "I'm mainly interested in information because we've already made our product decisions," Taselski says. He says he hopes to learn enough to help him roll out JR's network plans.

BILL TRUBEY
Network engineer at Lockheed Martin Corp. in Denver
A longtime Networld attendee, Trubey says

he plans to sit in on a workshop and two-day tutorial on ATM strategies and implementation. "We're looking at ATM to improve our WAN infrastructure as well as to help us reduce costs," he says.

Trubey also says he's hoping to learn more about network management, especially communications practices, procedures and tool sets; switched LAN technology; and bandwidth management systems. "Some of the most valuable information I get comes through sharing war stories with other network professionals in casual conversations," he says.

DONALD GATHERS
Network engineer at the University of Oregon in Eugene
What you don't know might hurt you. That's why Gathers and four others from the university will attend the show. "I want to see what we're not doing now," Gathers says. He will attend a seminar on TCP/IP administration to learn about integration of Unix systems and other desktop operating systems such as Windows and Mac OS. Gathers, who oversees a 7,000-node network, says Microsoft's Windows 95 and NT are coming on strong.

"We want to stay on top of technology to make sure that our department can do in the future what we can't do now," he says. Gathers says he will visit several vendor booths, in particular vendors of backup applications and Hewlett-Packard Co. "I'm interested in OpenMail because, while I love the Lotus CC:Mail interface, which we're currently running, I don't like the architecture," he says. ■

Haber is a freelance writer in Norwell, Mass.

ADVERTISERS LISTINGS

CYLINK
SUPER COP ON THE SUPER HIGHWAY

Introducing SecureLAN™ from Cylink. The cost benefit of public switched networks combined with network security confidence.

Cylink, the industry leader for low cost network security over the internet, introduces SecureLAN, a family of products that keeps your network safe from intruders.

Certifiably secure.

SecureLAN uses hacker-proof digital certificate technology. In one system you get a complete set of security features including access control, authentication, integrity, and privacy. SecureLAN is based on industry standards which meet or exceed next generation security

standards: digital certificates, digital signatures, public-key cryptography, and Diffie-Hellman key management.

The SecureLAN family of products easily integrates into your existing network. SecureLAN provides security at the application level, between end nodes, domains, and sub-networks, providing a comprehensive security solution for your entire enterprise network.

So, put the Cylink Super Cop on your Super Highway. Call 1.800.533.3958 (US) or 408.735.5800, (outside the US). We will send you the information you need to keep your network safe.

SecureLAN family of products provide network security over low cost public switched networks.

⬢ CYLINK.

910 Hermosa Court, Sunnyvale, CA 94086, USA Tel: 408.735.5800 Fax. 408.720.8294 http://www.cylink.com/
©Copyright 1995 Cylink Incorporated SecureLAN is a trademark of Cylink Corp.
Other trademarks or registered trademarks are the property of their owners. E-mail: info@cylink.com All Cylink products by Fax. 408.735.6614

OPEN UP

Tell the truth. Wouldn't you like to have open SNA printing for your internet?

Looking for a way to centralize your printing and still deliver access? Just open up the "Brixton Solutions Guide" and you'll find the answer. It tells you exactly how you can provide TCP/IP access from any network to any SNA printer. And how you can support local printers at the same time for complete flexibility. At last, you'll have open access to all your Novell, TCP/IP and SNA printers. The guide is free from CNT Corporation, the leader in TCP/IP-to-SNA access. Call today for your copy. It's an open and shut case.

■CNT™ UK +44 1753 792400
France +33 1 41 30 12 12
Germany +49 6074/8277-0

1-800-CNT-0090
1-800-268-0090

http://www.cnt.com

AutoBoot Technology in a New 'Slimmer' Size!

- ■ **Control up to 96 file servers with just 1 keyboard, monitor and mouse**

- ■ **AutoBoot™ feature boots all computers without user intervention**

- ■ **1.75" unit fits into your computer rack using a minimum of space**

- ■ **Push-button and keyboard controlled scanning standard**

- ■ **Control all computers locally, remotely, or both**

- ■ **Supports all 100% IBM compatible PCs and PS/2 or serial mouse; optional Macintosh and Sun support available**

- ■ **Rear peripheral access available**

SLIMLINE
COMMANDER™

⬡ CYBEX™
COMPUTER PRODUCTS CORPORATION

4912 Research Drive   Huntsville Al 35805 USA
1-800-932-9239•(205) 430-4030 fax

Sales Offices

To have your Internet address listed here, please contact Paula Wright at (508) 620-7716
This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

Have a Problem With Your Computerworld Subscription?

We want to solve it to your complete satisfaction, and we want to do it fast.
Please write to:
COMPUTERWORLD, P.O. Box 2043, Marion, Ohio 43305-2043.
Your magazine subscription label is a valuable source of information for you and us. You can help us by attaching your magazine label here, or copy your name, address, and coded line as it appears on your label. Send this along with your correspondence.

Address Changes or Other Changes to Your Subscription
All address changes, title changes, etc. should be accompanied by your address label, if possible, or by a copy of the information which appears on the label, including the coded line.

Your New Address Goes Here   Address shown: ❏ Home ❏ Business

Name _____
Company _____
Address _____
City _____ State _____ Zip _____

Other Questions and Problems
It is better to write us concerning your problem and include the magazine label. Also, address changes are handled more efficiently by mail. However, should you need to reach us quickly the following toll-free number is available: 1-800-669-1002 Outside U.S. call (614) 382-3322) CompuServe members can reach us at account number 73373, 1230. Internet address: circulation@cw.com

Finance & Investing

Mutual fund maven shares high-technology insight

Nick Moore, a portfolio manager for the Franklin Templeton Group in San Mateo, Calif., helps run the firm's $65 million California Growth Fund and its $335 million Small Cap Growth Fund. The funds, which are about 30% invested in high-technology stocks, appreciated by at least 40% last year. Staff writer Stewart Deck asked Moore to explain how he picks technology stocks.

Q: 1995 was a great year for high-technology stocks. Can this continue?

A: 1995 was a once-in-a-decade year of optimism, when everything worked, but that is not sustainable. 1996 will be more like an average of the last six or seven years.

Q: What guidelines do you follow when selecting stocks?

A: We lean toward companies with a franchise in intellectual property, such as **Intel Corp. (NASDAQ:INTC)**, as opposed to companies like **Micron Technology, Inc. (NYSE:MU)** that sell commodities.

We want products sold by businesses to businesses rather than to consumers.

We look for companies with large market share. They should either own at least 50% of the market or be part of an oligopoly of three or four market leaders.

We watch gross margins. For networking stocks, you want margins higher than 50% (60% to 75% if the company is involved in routers). For disk drive manufacturers, gross margins around 20% are good. For PC manufacturers, gross margins in the 20% range are good. For business software, good gross margins are 70% to 80%.

We also look at product life cycles. The latest update of a company's most important product should increase profits. If it doesn't, then people have switched to something else.

We also watch price-to-earnings and price-to-sales ratios. The lower the price-to-earnings ratio, the more attractive it is. The exact ratios depend on the individual sectors.

Q: Should the reputation of a company's management, or new management, entice investors?

A: Don't buy a company because of management. Buy it for great products.

Q: Several software companies have had a rough time recently. Should investors stay away from software?

A: Not necessarily. Because of slow Windows 95 sales, every company involved in PC software missed its numbers recently, except **Microsoft Corp. (NASDAQ: MSFT)**.

In the software sector, **Adobe Systems, Inc. (NASDAQ: ADBE)** is a good company with positive cash flow, huge R&D and high margins. It just had too much Windows 95 product in the channel, so it didn't make its numbers and lost 50% of its stock value. It could go up 100% in the next 18 to 24 months.

Q: Are there other companies, similar to Adobe, that you think are particularly undervalued?

A: **Symantec Corp. (NASDAQ:SYMC)** and **Silicon Graphics, Inc. (NYSE:SGI)**. Silicon Graphics is a good franchise with great products and great science that had a bad quarter.

Q: Which sectors would you stay away from?

A: Although Internet stocks have dropped in price recently, they're still overpriced. Data warehousing stocks are terribly overvalued right now, as well.

Q: Which sectors do you like?

A: Networking. Networking speed hasn't kept pace with the ever-increasing speed of processing. It's hard to see this as anything but an open-ended opportunity, although maybe not for every vendor.

Q: When do you sell a rising stock?

A: Sell when the company reaches its full valuation, especially low-margin commodity businesses. If you bought the stock just because it was a bargain, you don't want to still have it when it rises back to average levels.

The only reason to buy those in the first place is if you can get them at a great price. The majority of technology companies aren't worth holding when they're fully valued.

Look at how fast they turn over their assets, where they are in their product life cycle and how fast the market is growing. Run the numbers. If it's a strong, high-quality franchise and it isn't showing any signs of strain, then give it a little extra room.

Moore's rules of thumb

■ Buy the market leader if it is still growing at a good clip. The biggest mistake technology investors make is fooling around with $20 million companies. Go with the company that has grown from $300 million to $1 billion.

■ Buy companies with an established user base.

■ Jump in with both feet. Don't go into a stock to make 10%. Moore won't buy stock unless he thinks he can potentially make 40% in two years.

■ Don't try to catch a temporarily hot company.

Nick's picks

GREAT FRANCHISES AT REASONABLE VALUES

- Hewlett-Packard Co. (NYSE:HWP)
- Motorola, Inc. (NYSE:MOT)
- Intel Corp. (NASDAQ:INTC)
- Cisco Systems, Inc. (NASDAQ:CSCO)
- Oracle Corp. (NASDAQ:ORCL)
- Adaptec, Inc. (NASDAQ:ADPT)

GOOD VALUATIONS

- MapInfo Corp. (NASDAQ:MAPS)
- Exar Corp. (NASDAQ:EXAR)
- Glenayre Technologies, Inc. (NASDAQ:GEMS)

RECENT TUMBLES BUT STILL SOLID

- Acclaim Entertainment, Inc. (NASDAQ:AKLM)
- Xilinx, Inc. (NASDAQ:XLNX)
- Altera Corp. (NASDAQ:ALTR)
- Adobe Systems, Inc. (NASDAQ:ADBE)
- Symantec Corp. (NASDAQ:SYMC)

EMERGING TECHNOLOGIES

- Business Objects SA (NASDAQ:BOBJY)
- Cognos, Inc. (NASDAQ:COGNF)
- Red Brick Systems, Inc. (NASDAQ:REDB)
- Remedy Corp. (NASDAQ:RMDY)
- Scopus Technology, Inc. (NASDAQ:SCOP)
- Clarify, Inc. (NASDAQ:CLFY)
- Vantive Corp. (NASDAQ:VNTV)
- Baan Co. (NASDAQ:BAANF)
- PeopleSoft, Inc. (NASDAQ:PSFT)

ILLUSTRATION BY

The Week in Stocks

Gainers *Losers*

PERCENT

Gainers		Losers	
Micropolis Corp.	50.0	Cheyenne Software Inc.	-29.8
Egghead Discount Software	37.1	Progress Software Corp.(L)	-29.0
Retix	25.0	Bachman Info. Systems	-17.1
Xircom	20.2	Control Data Systems Inc.	-16.5
NetFrame	17.1	Magic Software Enterprises	-16.1
Newbridge Networks Corp.(H)	14.7	Cognitronics Corp.	-15.2
Softkey International Inc.	14.6	Peak Technology Group	-15.1
Ross Systems	14.0	TriCord Systems	-15.1

DOLLAR

Gainers		Losers	
Newbridge Networks Corp.(H)	7.25	Cheyenne Software Inc.	-6.75
CompUSA Inc.(H)	5.75	Progress Software Corp.(L)	-6.13
Cascade Communications(H)	4.63	Policy Management Sys.	-5.13
Cambridge Tech. Partners	3.50	Control Data Systems Inc.	-3.88
NEC America	3.25	Microcom Inc.	-3.50
Stratacom Inc.	2.88	Spyglass Inc.	-3.38
Egghead Discount Software	2.88	Xerox Corp.	-3.38
America On-Line	2.75	88N Corp.	-3.25

Industry Almanac

IE rides distribution shifts

The playing field has shifted in the PC distribution business, leading to some rocky times for distributor stocks.

"A trend to open sourcing represents a fundamental shift in how high-volume PCs are distributed," says David Grossman, a vice president at Montgomery Securities in San Francisco. Open sourcing means vendors no longer obligate resellers to buy from a particular distributor.

That development has hurt **Intelligent Electronics, Inc. (NASDAQ:INEL)** more than most distributors, Grossman says. "It was the only pure aggregator left in the marketplace that was moving PCs in volume."

In addition, Intelligent Electronics (IE) has struggled with consolidation in its customer base. It acquired one of its customers, The Future Now, Inc., to keep it out of competitors' hands, Grossman says.

But Annie Erner, an analyst at UBS Securities, Inc. in New York, advises investors that the stock is a good long-term buy. The combination of The Future Now and IE's other service business amounts to $100 million in annual revenue. That by itself is worth what IE's stock is trading for, she notes.

Although optimistic about the company's prospects, James Meyer, an analyst at Janney Montgomery Scott, Inc. in New York, has a hold on the stock.

"They are a reseller trying to become a service company," he says. "Now it comes down to execution."

— *Stewart Deck and Tam Harbert*

Shifting ground

Intelligent Electronics has been volatile as it tries to adjust to changes in the distribution business

6 11/16	6 1/4		6 5/8
	4 1/2		5 7/16
12/1/95	1/2/96	2/1/96	3/1/96	3/22/96

Exch	52-Week Range			Mar. 29 3 PM	Wk Net Change	Wk Pct Change
Communications and Network Services						OFF 0.36%
COMS	53.63	25.75	3 COM CORP.	39.94	-1.56	-3.8
AIT	66.88	40.88	AMERITECH CORP.	54.75	-2.63	-4.6
AXE	22.13	16.00	ANIXTER INTL. (L)	16.88	-1.88	-10.0
APTS	15.00	2.75	APERTUS TECH.	3.69	-0.31	-7.8
T	68.88	47.88	AT & T	61.25	0.00	0.0
ASND	58.25	7.75	ASCEND COMMUNICATIONS	53.88	-0.13	-0.2
8NYN	18.63	6.00	BANYAN SYSTEMS INC.	7.75	0.06	0.8
8AY	50.00	21.75	BAY NETWORKS INC.	31.13	-2.88	-8.5
88N	48.75	16.50	88N CORP.	25.38	-3.25	-11.4
8EL	80.38	52.00	BELL ATLANTIC CORP.	62.38	-2.00	-3.1
8LS	45.88	29.13	BELLSOUTH CORP.	37.50	-1.38	-3.5
8RKT	37.25	9.13	BROOKTROUT TECHNOLOGY	33.50	2.00	6.3
CS	87.75	42.88	CABLETRON SYSTEMS	66.75	-3.13	-4.5
CSCC	90.38	20.38	CASCADE COMMUNICATIONS (H)	90.38	4.63	5.4
CGRM	25.13	12.75	CENTIGRAM COMMUNICATIONS	22.00	0.50	2.3
CSCO	51.00	17.63	CISCO SYSTEMS INC.	47.00	1.63	3.6
CLIX	11.38	5.38	COMPRESSION LABS INC.	5.38	-0.44	-7.5
CMNT	12.75	4.00	COMPUTER NETWORK TECH.	5.63	0.50	9.8
XCOM	14.50	8.75	CROSSCOMM	10.50	0.50	5.0
DIGI	64.00	21.88	DSC COMMUNICATIONS	26.75	-1.38	-4.9
FORE	75.00	25.50	FORE SYSTEMS INC.	72.00	-0.94	-1.3
GDC	21.88	9.25	GENERAL DATACOMM INDS.	10.75	-0.13	-1.1
GSX	42.50	28.00	GENERAL SIGNAL NETWORKS	36.50	-0.25	-0.7
GTE	49.25	31.88	GTE CORP.	44.00	-0.13	-0.3
MCIC	31.00	19.09	MCI COMMUNICATIONS CORP.	30.38	0.19	0.6
MICM	12.50	5.50	MICOM COMMUNICATIONS CORP.	8.75	-0.50	-5.4
MNPI	34.50	9.13	MICROCOM INC.	29.63	-3.50	-10.6
NETM	34.00	9.38	NETMANAGE INC. (L)	11.13	0.00	0.0
NTRX	8.75	3.63	NETRIX CORP.	5.00	0.13	2.6
NCDI	12.00	3.38	NETWORK COMPUTING DEVICES (L)	4.00	0.06	1.6
NWK	42.00	19.75	NETWORK EQUIPMENT TECH.	30.50	0.75	2.5
NETG	46.50	22.75	NETWORK GENERAL	39.75	-2.00	-4.8
NN	56.63	25.00	NEWBRIDGE NETWORKS CORP. (H)	56.63	7.25	14.7
NT	50.88	31.50	NORTHERN TELECOM LTD.	47.88	-1.88	-3.8
NOVL	23.25	11.38	NOVELL INC.	13.63	0.50	3.8
NYN	59.25	39.25	NYNEX CORP.	50.63	-0.63	-1.2
OCTL	49.00	18.00	OCTEL COMMUNICATIONS CORP. (H)	49.00	0.75	1.6
ODSI	43.25	16.88	OPTICAL DATA SYSTEMS INC.	21.00	-2.25	-9.7
PCTL	44.72	17.00	PICTURETEL CORP.	32.13	-2.63	-7.6
PTON	10.75	4.75	PROTEON INC.	5.13	-0.38	-6.8
RACO	7.88	4.25	RACOTEK INC.	4.88	-0.50	-9.3
RETX	5.50	1.81	RETIX	5.00	1.00	25.0
SFA	24.88	11.38	SCIENTIFIC ATLANTA INC.	17.63	-1.13	-6.0
SHVA	96.25	28.25	SHIVA CORP.	92.75	-1.25	-1.3
S8C	60.25	41.63	SOUTHWESTERN BELL CORP.	52.75	-0.63	-1.2
FON	45.50	29.25	SPRINT CORP.	38.38	1.00	2.7
SMSC	23.50	12.50	STANDARD MICROSYSTEMS CORP.	15.88	-0.25	-1.6
STRM	44.50	16.00	STRATACOM INC.	36.88	2.88	8.5
T8IT	8.63	2.38	TELEBIT CORP.	5.13	0.44	9.3
USRX	139.75	30.88	US ROBOTICS	130.00	0.50	0.4
USW	48.38	28.38	U S WEST INC.	32.75	0.00	0.0
XIRC	15.50	8.88	XIRCOM	13.38	2.25	20.2
XYLN	60.50	51.25	XYLAN CORP. (L)	51.75	-1.75	-3.3

Exch	52-Week Range			Mar. 29 3 PM	Wk Net Change	Wk Pct Change
PCs and Workstations						UP 0.00%
AALR	9.63	4.25	ADVANCED LOGIC RESEARCH	6.63	-0.38	-5.4
AAPL	50.13	23.00	APPLE COMPUTER INC. (L)	24.13	-0.88	-3.5
ASTA	19.13	4.63	AST RESEARCH INC. (L)	4.75	0.00	0.0
CPQ	56.75	31.13	COMPAQ COMPUTER CORP.	38.63	0.75	2.0
DELL	49.38	21.25	DELL COMPUTER CORP.	34.63	1.88	5.7
GATE	37.50	16.00	GATEWAY 2000 INC.	27.88	1.38	5.2
HWP	104.13	59.13	HEWLETT PACKARD CO.	96.38	-1.13	-1.2
MUEI	29.88	9.00	MICRON INTERNATIONAL INC.	9.88	-0.75	-7.1
NIPNY	75.13	49.88	NEC AMERICA	57.88	3.25	5.9
SGI	45.63	21.13	SILICON GRAPHICS	25.00	0.25	1.0
SUNW	57.13	16.75	SUN MICROSYSTEMS INC.	44.50	-0.63	-1.4

Exch	52-Week Range			Mar. 29 3 PM	Wk Net Change	Wk Pct Change
Large Systems						OFF 1.01%
AMH	13.63	6.75	AMDAHL CORP.	8.31	-0.44	-5.0
CYR	29.25	17.63	CRAY RESEARCH INC.	29.00	0.50	1.8
DGN	19.13	6.75	DATA GENERAL CORP.	14.88	-0.13	-0.8
DEC	76.50	34.38	DIGITAL EQUIPMENT CORP.	55.13	1.00	1.8
I8M	128.88	81.38	IBM	113.38	-2.25	-1.9
MDCD	13.00	3.00	MERIDIAN DATA INC.	10.25	0.00	0.0
NETF	7.50	4.25	NETFRAME	5.13	0.75	17.1
SQNT	25.38	10.13	SEQUENT COMPUTER SYS.	11.75	-0.25	-2.1
SEQS	10.00	3.44	SEQUOIA SYSTEMS INC. (L)	3.50	-0.25	-6.7
SRA	36.13	23.00	STRATUS COMPUTER INC.	27.50	0.13	0.5
TDM	17.50	8.75	TANDEM COMPUTERS INC.	8.88	-0.25	-2.7
TRCD	5.75	2.00	TRICORD SYSTEMS	3.88	-0.69	-15.1
UIS	13.63	5.50	UNISYS CORP.	6.00	0.00	0.0

Exch	52-Week Range			Mar. 29 3 PM	Wk Net Change	Wk Pct Change
Software						OFF 1.91%
AD8E	74.25	30.00	ADOBE SYSTEMS INC.	32.13	0.75	2.4
AMSWA	8.75	3.50	AMERICAN SOFTWARE INC.	3.75	-0.13	-3.2
APLX	41.75	8.25	APPLIX INC.	35.75	-0.50	-1.4
ARSW	48.50	28.75	ARBOR SOFTWARE	44.00	0.50	1.1
ACAD	53.00	27.75	AUTODESK INC.	38.50	2.50	6.9
8ACH	11.88	4.13	BACHMAN INFO. SYSTEMS	8.50	-1.75	-17.1
8GSS	42.00	27.75	BGS SYSTEMS INC.	35.25	-0.25	-0.7
8MCS	61.38	27.63	BMC SOFTWARE INC.	54.81	-1.19	-2.1
8OOL	26.38	18.25	BOOLE AND BABBAGE	25.75	1.00	4.0
8ORL	21.25	7.75	BORLAND INT'L INC.	17.75	0.00	0.0
8O8JY	93.75	28.75	BUSINESS OBJECTS (H)	85.00	-2.25	-2.6
CESH	3.94	1.38	CE SOFTWARE	2.50	-0.25	-9.1
CYE	27.88	12.38	CHEYENNE SOFTWARE INC.	15.88	-6.75	-29.8
COGNF	63.25	18.88	COGNOS INC.	57.75	1.25	2.2
CA	76.50	37.00	COMPUTER ASSOCIATES	72.63	2.63	3.8
CVN	15.50	4.75	COMPUTERVISION CORP.	10.13	0.63	6.6
CPWR	37.75	15.50	COMPUWARE CORP.	23.38	-1.38	-5.6
CSRE	27.25	9.88	COMSHARE INC.	21.75	-1.75	-7.4
COSFF	19.50	8.38	COREL CORP.	9.88	-0.38	-3.7
DWTI	16.00	5.75	DATAWARE TECHNOLOGIES INC.	6.25	0.00	0.0
DSLGF	32.25	9.75	DISCREET LOGIC INC.	13.50	-1.25	-8.5
FILE	67.00	30.25	FILENET CORP.	58.00	-1.88	-3.1
DDDDF	8.25	3.38	4TH DIMENSION	5.50	-0.38	-6.4
FTPS	40.63	10.38	FTP SOFTWARE INC.	12.31	-0.06	-0.5
GSOF	26.00	7.50	GROUP I SOFTWARE	8.00	-1.00	-11.1
GPTA	11.50	4.88	GUPTA	5.56	-0.31	-5.3
HYSW	28.38	14.00	HYPERION SOFTWARE CORP.	21.63	-0.88	-3.9
IRIC	18.63	10.00	INFORMATION RESOURCES	14.38	0.00	0.0
IFMX	36.75	16.63	INFORMIX CORP.	27.00	-3.13	-10.4
INGR	20.13	10.00	INTERGRAPH CORP.	16.13	-1.63	-9.2
LEAF	12.63	4.25	INTERLEAF INC.	8.81	-0.44	-4.7
ISLI	26.25	8.75	INTERSOLV INC.	11.63	0.50	4.5
INTU	89.25	29.63	INTUIT INC.	45.38	-3.13	-6.4
LGWX	19.50	10.88	LOGIC WORKS	16.25	0.13	0.8
MGICF	13.75	3.63	MAGIC SOFTWARE ENTERPRISES	9.13	-1.75	-16.1
MANU	20.50	9.50	MANUGISTICS GROUP INC.	13.00	0.13	1.0
MAPS	40.00	10.00	MAPINFO CORP.	11.75	-0.25	-2.1
MATH	7.38	2.75	MATHSOFT	6.00	-0.38	-5.9
MCAF	65.25	17.88	MCAFEE ASSOCIATES	56.50	-1.25	-2.2
MENT	22.88	10.88	MENTOR GRAPHICS	14.63	-0.13	-0.8
MIFGY	12.88	8.25	MICRO FOCUS	10.38	0.88	9.2
MGXI	15.13	5.75	MICROGRAFX INC.	12.94	-0.81	-5.9
MSFT	109.25	68.75	MICROSOFT CORP.	103.50	2.50	2.5
ORCL	55.00	28.00	ORACLE CORP.	47.75	-0.63	-1.3

Exch	52-Week Range			Mar. 29 3 PM	Wk Net Change	Wk Pct Change
PMTC	39.00	17.88	PARAMETRIC TECHNOLOGY	39.00	2.50	6.8
PARQ	16.50	6.63	PARCPLACE SYSTEMS INC.	8.75	0.38	4.5
PSFT	59.25	19.63	PEOPLESOFT	57.25	1.75	3.2
PTEC	16.13	6.75	PHOENIX TECHNOLOGIES	14.00	1.13	8.7
PSQL	16.88	3.13	PLATINUM SOFTWARE	7.13	0.00	0.0
PLAT	26.00	11.25	PLATINUM TECHNOLOGY	15.13	-0.63	-4.0
PRGS	38.00	14.75	PROGRESS SOFTWARE CORP. (L)	15.00	-6.13	-29.0
RN8O	26.75	15.13	RAINBOW TECHNOLOGIES INC.	17.75	-0.63	-3.4
ROSS	7.75	2.19	ROSS SYSTEMS	3.56	0.44	14.0
SCOC	15.00	5.50	SCO INC.	6.38	-0.13	-1.9
SDTI	67.50	14.88	SECURITY DYNAMICS TECH.	53.25	0.25	0.5
SKEY	51.75	13.38	SOFTKEY INTERNATIONAL INC.	20.63	2.63	14.6
SPCO	5.13	2.19	SOFTWARE PUBLISHING CORP.	2.88	-0.19	-6.1
SQAX	27.75	16.00	SQA INC.	27.25	-0.13	-0.5
SOTA	14.88	6.63	STATE OF THE ART	12.00	-0.63	-5.0
SSW	72.63	32.88	STERLING SOFTWARE INC.	71.25	1.75	2.5
SDRC	35.50	8.38	STRUCT. DYNAMICS RESEARCH	33.00	-0.69	-2.0
SY8S	42.75	19.88	SYBASE INC.	22.75	-2.13	-8.5
SYMC	33.25	9.88	SYMANTEC CORP.	12.75	-0.63	-4.7
SNPS	38.50	23.00	SYNOPSYS	32.00	2.00	6.7
SSAX	30.63	12.63	SYSTEM SOFTWARE ASSOC.	24.75	2.50	11.2
SYSF	18.13	7.75	SYSTEMSOFT CORP.	16.13	-0.25	-1.5
TRUV	10.13	3.88	TRUEVISION CORP.	7.25	-0.06	-0.9
VIEW	15.13	8.38	VIEWLOGIC SYSTEMS	11.00	0.25	2.3
VMRK	21.50	5.75	VMARK SOFTWARE INC.	7.19	0.06	0.9
WALK	11.13	4.63	WALKER INTERACTIVE SYSTEMS	10.00	-0.19	-1.8
WALL	51.25	13.00	WALL DATA INC.	15.75	0.44	2.9
WANG	25.38	11.25	WANG LABORATORIES INC.	23.63	-1.38	-5.5

Exch	52-Week Range			Mar. 29 3 PM	Wk Net Change	Wk Pct Change
Internet						OFF 3.15%
AMER	60.00	16.75	AMERICA ON-LINE	56.63	2.75	5.1
NETC	91.50	19.00	NETCOM ON-LINE	24.13	-1.13	-4.5
NSCP	87.00	22.88	NETSCAPE COMM. CORP.	42.00	-0.75	-1.8
PSIX	29.00	8.75	PSINET	9.75	-0.38	-3.7
QDEK	39.50	3.50	QUARTERDECK CORP.	14.50	-0.13	-0.9
SPYG	61.00	13.25	SPYGLASS INC.	21.63	-3.38	-13.5
UUNT	98.75	21.75	UUNET TECH.	25.50	-0.75	-2.9

Exch	52-Week Range			Mar. 29 3 PM	Wk Net Change	Wk Pct Change
Semiconductors						OFF 1.21%
AMD	39.25	16.13	ADVANCED MICRO DEVICES	17.50	0.50	2.9
ADI	30.13	16.63	ANALOG DEVICES INC.	27.75	0.00	0.0
CHPS	15.88	7.13	CHIPS AND TECHNOLOGIES	8.88	-0.38	-4.1
CRUS	61.13	16.75	CIRRUS LOGIC	18.00	0.00	0.0
CY	27.75	10.00	CYPRESS SEMICONDUCTOR CORP.	11.88	-0.63	-5.0
CYRX	49.75	18.25	CYRIX	24.50	1.25	5.4
INTC	78.38	41.50	INTEL CORP.	57.00	0.75	1.3
LSI	62.50	22.50	LSI LOGIC CORP.	26.75	-0.63	-2.3
LSCC	43.00	23.00	LATTICE SEMICONDUCTOR	28.25	-1.13	-3.8
MCRL	32.50	12.50	MICREL SEMICONDUCTOR INC.	15.00	-1.50	-9.1
MU	94.75	27.50	MICRON TECHNOLOGY	31.88	-0.13	-0.4
MOT	82.50	44.75	MOTOROLA INC.	53.13	-1.25	-2.3
NSM	33.63	14.00	NATIONAL SEMICONDUCTOR	14.00	-0.88	-5.9
SERA	28.75	9.75	SIERRA SEMICONDUCTOR	19.38	-1.25	-6.1
TXN	83.75	42.75	TEXAS INSTRUMENTS	51.25	0.63	1.2
VLSI	39.13	10.75	VLSI TECHNOLOGY	12.63	0.00	0.0
WWTK	6.88	1.25	WEITEK	1.63	0.00	0.0
WDC	22.13	13.38	WESTERN DIGITAL CORP.	19.25	1.13	6.2
XLNX	55.50	20.75	XILINX	32.38	-1.88	-5.5
ZLG	54.13	28.50	ZILOG INC.	33.88	1.00	3.0

Exch	52-Week Range			Mar. 29 3 PM	Wk Net Change	Wk Pct Change
Peripherals and Subsystems						UP 0.23%
APCC	25.88	7.88	AMERICAN POWER CONVERSION	10.13	0.13	1.3
ADPT	56.38	29.25	ADAPTEC INC.	49.38	-0.88	-1.7
C8EX	13.13	4.25	CAMBEX CORP.	6.13	0.00	0.0
CGN	7.25	2.50	COGNITRONICS CORP.	4.19	-0.75	-15.2
CREAF	14.13	5.88	CREATIVE TECHNOLOGIES INC.	6.19	-0.63	-9.2
RACE	13.13	3.63	DATA RACE INC.	4.31	-0.44	-9.2
DTM	9.38	4.13	DATARAM CORP.	4.25	-0.13	-2.9
EMC	27.38	13.00	EMC CORP.	21.88	1.25	6.1
EMLX	28.50	6.38	EMULEX CORP.	14.38	1.25	9.5
ESCC	25.25	13.00	EVANS AND SUTHERLAND	23.00	1.25	5.7
EX8T	18.00	10.00	EXABYTE	16.13	1.13	7.5
IISLF	4.25	1.50	INTELLIGENT INFO. SYSTEMS	2.06	0.06	3.1
IOMG	26.38	2.25	IOMEGA CORP.	26.38	2.50	10.5
IPLSA	7.88	2.50	IPL SYSTEMS INC.	5.56	-0.19	-3.3
KMAG	37.50	14.75	KOMAG INC.	25.00	-0.50	-2.0
MLIS	7.50	1.25	MICROPOLIS CORP.	3.38	1.13	50.0
MTSI	37.75	11.25	MICRO TOUCH SYSTEMS INC.	15.25	0.50	3.4
PEAK	34.75	16.75	PEAK TECHNOLOGY GROUP	18.25	-3.25	-15.1
PNCL	19.75	5.88	PINNACLE MICRO INC.	7.94	-0.06	-0.8
PTNX	38.75	13.50	PRINTRONIX INC.	18.63	-0.38	-2.0
AQM	6.38	3.25	QMS INC.	4.88	-0.38	-7.1
QNTM	28.50	14.00	QUANTUM CORP.	17.88	-1.00	-5.3
RDUS	14.13	0.94	RADIUS INC.	2.06	-0.25	-10.8
SEG	67.75	26.25	SEAGATE TECHNOLOGY	55.25	1.38	2.6
STK	31.75	17.88	STORAGE TECHNOLOGY	25.88	-0.50	-1.9
TEK	61.88	29.75	TEKTRONIX INC.	33.50	-1.50	-4.3
XRX	144.63	109.38	XEROX CORP.	127.13	-3.38	-2.6

Exch	52-Week Range			Mar. 29 3 PM	Wk Net Change	Wk Pct Change
Services						UP 0.46%
AMSY	26.63	11.38	AMERICAN MGMT. SYSTEMS (H)	25.25	-0.88	-3.3
ANLY	37.75	22.25	ANALYSTS INT'L	34.00	-1.50	-4.2
AUD	43.38	30.25	AUTO DATA PROCESSING	39.88	0.38	0.9
CATP	61.00	27.25	CAMBRIDGE TECH. PARTNERS	56.50	3.50	6.6
CEN	47.50	31.63	CERIDIAN CORP.	43.13	0.00	0.0
CDO	23.75	17.25	COMDISCO INC.	22.00	1.50	7.3
CHRZ	37.88	7.38	COMPUTER HORIZONS (H)	37.88	0.75	2.0
CSC	80.75	46.50	COMPUTER SCIENCES	70.63	-0.25	-0.4
TSK	22.00	10.38	COMPUTER TASK GROUP	19.00	-1.13	-5.6
CPU	55.63	17.50	COMPUSA INC. (H)	55.63	5.75	11.5
CDAT	26.13	6.63	CONTROL DATA SYSTEMS INC.	19.63	3.83	-16.5
EGGS	14.25	5.00	EGGHEAD DISCOUNT SOFTWARE	10.63	2.88	37.1
GME	58.00	38.38	GENERAL MOTORS E (FDS)	57.38	1.88	3.4
INAC	18.50	8.13	INACOM CORP.	16.94	-0.44	-2.5
INEL	14.63	3.50	INTELLIGENT ELECTRONICS	5.50	0.00	0.0
KEA	30.88	18.25	KEANE INC.	29.63	0.63	3.0
MSEL	8.38	2.25	MERISEL	2.56	-0.38	-12.8
MICA	15.00	7.25	MICROAGE INC.	13.38	0.00	0.0
PAYX	62.50	28.75	PAYCHEX	38.75	1.75	5.1
PMS	54.25	42.63	POLICY MANAGEMENT SYS.	44.75	-5.13	-10.3
REY	41.00	25.88	REYNOLDS AND REYNOLDS	41.00	1.25	3.1
SEIC	24.50	17.25	SEI CORP.	21.25	-0.69	-3.2
SMED	62.88	32.00	SHARED MEDICAL SYSTEMS	61.25	0.00	0.0
SSPE	26.50	14.88	SOFTWARE SPECTRUM INC.	20.25	-0.25	-1.2
SNDT	38.00	21.63	SUNGARD DATA SYSTEMS (H)	34.25	-2.25	-6.2

WELCOME TO PLANET INTERNET.

TRANSPORTATION PROVIDED BY CISCO SYSTEMS.

Ever wondered who actually connects the core of the Internet together?

The answer is Cisco Systems.

In fact, more than 80% of the routers that connect the many networks of the Internet together bear the Cisco name.

These are the routers that keep the information on the Internet moving freely across the countries, time zones, and continents of planet Earth.

From the Internet to the huge, global internetworks that are the backbone of the world's largest organizations, there is no other company in the world that can offer you the accumulated experience, expertise, talent and technology found at Cisco Systems. Pay a visit to our home on the Web at http://www.cisco.com. Or contact us by voice at 1-800-778-3632, ext. 158.

And discover for yourself how all of your information can travel by first class.

CISCO SYSTEMS

THE NETWORK WORKS
NO EXCUSES

VISIT US AT BOOTH #4759 AT NETWORLD + INTEROP, LAS VEGAS

How to contact CW editors

CONTACTING US BY PHONE

All editors can be contacted at our main phone number, (508) 879-0700, unless otherwise noted below. Our **24-hour news tip line** is (508) 820-8555. For **subscriptions**, call (800) 669-1002, **back issues**, call (508) 820-8129, **reprints**, call (508) 820-8125. Our **main fax number** is (508) 875-8931.

CONTACTING US BY E-MAIL

Our Web address is www.computerworld.com. All of our staff members can be reached via E-mail on the **Internet** using the form firstname_lastname@cw.com. IDG News Service correspondents can be reached using the form firstname_lastname@idg.com. **Subscription** inquiries go to circulation@cw.com.

Letters to the editor are welcome and should be sent to letters@cw.com. Please include your address and telephone number.

Our **CompuServe** address is 76537,2413 for editorial correspondence only. Direct **subscription** inquiries to CompuServe: 73373,1230.

Respond to our **Talkback** inquiries at talkback@cw.com.

CONTACTING CW EDITORS

We invite our readers to call or write with comments and ideas. It is best to submit ideas to one of the department editors as well as to the appropriate beat reporter.

Editor	Paul Gillin (508) 620-7724
Executive Editor	Maryfran Johnson (508) 820-8179

DEPARTMENT EDITORS/NEWS

News Editor	Patricia Keefe (508) 820-8183
Sections Editor	Johanna Ambrosio (508) 820-8553
Assistant News Editor	Neal Weinberg (508) 820-8177
Assistant Sections Editor	Michael Fitzgerald (508) 820-8206
Associate Editor, News	Mitch Betts (202) 347-6718

SENIOR EDITORS/NEWS

Government and security	Gary H. Anthes (202) 347-0134
Local-area networks	Laura DiDio (508) 820-8182
Network management	Patrick Dryden (817) 924-5485

(Beat reporters)

PC hardware, systems management	Bob Francis (214) 387-1188
Application development	Frank Hayes (503) 252-0100
IS management	Thomas Hoffman (201) 587-0090
Microsoft systems software	Stuart J. Johnston (206) 641-7770
Client/server applications	Julia King (610) 532-7599
Internet	Kim S. Nash (214) 716-9822
Apple and PC software	Lisa Picarille (415) 548-5571
Databases	Dan Richman (360) 579-2065
Unix, Sun, open systems	Craig Stedman (508) 820-8120
Internet	Mitch Wagner (415) 548-5513
Internetworking	Bob Wallace (508) 820-8214

SENIOR WRITERS/NEWS

Mobile computing, social issues	Mindy Blodgett (508) 820-8168
Mainframes, high-end storage	Michael Goldberg (508) 620-7789
Groupware, E-mail	Tim Ouellette (508) 820-8215
Midrange hardware, low-end storage	Jaikumar Vijayan (508) 820-8220

STAFF WRITERS/NEWS

New products, imaging, multimedia	Stewart Deck (508) 820-8155
@Computerworld	Melissa Bane (508) 820-4765
@Computerworld	Juan Perez (508) 820-8567
@Computerworld	Randy Weston (508) 820-4869

OPINIONS/VIEWPOINT

Technical Editor	Charles Babcock (415) 548-5512
Viewpoint Editor	Mitch Betts (202) 347-6718

DEPARTMENT EDITORS/FEATURES

Technology Evaluations/CW Guide	James Connolly (508) 820-8144

SENIOR EDITORS/FEATURES

Managing	Allan E. Alter (508) 620-7714
In Depth	Steve Ulfelder (508) 620-7745
Finance & Investing	Tam Harbert (508) 620-8147
Corporate strategies	Joseph Maglitta (508) 820-8192
Management	Robert L. Scheier (508) 628-4931
Careers	David B. Weldon (508) 820-8166

ASSOCIATE EDITORS/FEATURES

CW Guide	Cathleen Gagne (508) 620-7729

RESEARCH

Bob Fink, senior research manager (508) 820-8116; Kevin Burden, senior researcher; Laura Hunt, research analyst; Amy Malloy, assistant researcher; Stefanie McCann, senior graphics coordinator.

SPECIAL PROJECTS, SUPPLEMENTAL PUBLICATIONS

(Including Premier 100, Best Places to Work, Campus edition, Leadership Series and Salary Survey)

Bruce Rayner, special projects editor (508) 820-8195; Joyce Chutchian-Ferranti, Pat Erickson, managing editors; Kay Carstens, copy editor.

COPY DESK

Anne McCrory, managing editor (508) 820-8205; Ellen Fanning, assistant managing editor; Roberta Fusaro, Christina Aicardi Maguire, senior copy editors; Kimberly Gilliard, Michelle Grabon, senior production copy editors; Jamie Eckle, Pat Hyde, David Ramel, copy editors.

GRAPHIC DESIGN

Tom Monahan, design director (508) 820-8218; Janell Genovese, Mitchell J. Hayes, Nancy Kowal, senior graphic designers; David Waugh, Mary Beth Welch, Stephanie Werskey, graphic designers; Rich Tennant, John Klossner, cartoonists.

ADMINISTRATIVE SUPPORT

Linda Gorgone, office manager (ext. 8176); Connie Brown (ext. 8178), Aleksandra Skulte (ext. 8172), Lorraine Witzell (ext. 8139), editorial assistants; Chris Flanagan, West Coast editorial assistant, (415) 548-5563.

COMPUTERWORLD CLIENT/SERVER JOURNAL

Alan Alper, editor (508) 820-8115; Mary Brandel, executive editor; Catherine McCrory, managing editor; Stephanie Faucher, art director; Kimberlee A. Smith, assistant managing editor.

IDG NEWS SERVICE CORRESPONDENTS

Paris bureau chief	Marc Ferranti (33) 1-4904-8001
Paris correspondent	Cara Cunningham (33) 1-4904-7917
Munich correspondent	Torsten Busse (49) 89-811-6057
UK correspondent	Ron Condon (44) 181-460-0944
Tokyo correspondent	Rob Guth (81) 33-358-6122
Taipei correspondent	Terho Uimonen (88) 62-500-6523

Companies in this issue

Page number refers to page on which story begins. Company names can also be searched at http://www.computerworld.com.

GeoLAN/500.
The State Of The Art In Super-Switching Hubs.

As the first ATM-ready hub to cost-effectively integrate multiple technologies to support shared and switched LAN connectivity, the GeoLAN™/500 switching hub is an affordable starting point for your migration to high-bandwidth networking.

GeoLAN/500 is scalable from 440Mbps to over 10Gbps throughput. Enough to handle the most demanding enterprise network applications.

It's designed for security and serviceability, with integral switching, full redundancy, and hot swappability for all common components. For the next ten years of NonStop®, mission-critical network operation–even during upgrades and routine maintenance. Plus plug-and-play compatibility for our Access/One® customers.

All starting at just $250/port.

GeoLAN/500 is available as a standalone hub or in the tower configuration shown at left.

Learn how to cost-effectively upgrade to super-switching hubs.
Call for our LAN Cost-Of-Ownership study.

1-800-777-4LAN
http://www.ub.com

UB Networks
NonStop® Networking.

Olympic telecommuting

telecommuting experiment in U.S. history.

"The hope is that the Olympics will be a catalyst for [development of] long-term telecommuting policies," said Michael Dziak, a telecommuting consultant and co-founder of the Metro Atlanta Telecommuting Advisory Council. "We can be a laboratory for teleworking."

But while Dziak's telecommuting workshops are packed, he said he is stunned by the number of companies that aren't planning to change work habits at all. His stated goal was to get 20,000 workers at 200 out of 1,300 companies to institute comprehensive telecommuting policies by January of this year. But so far only about 24 companies have done so, he said.

This is due partly to resistance from upper managers, who fear a loss of control and productivity when employees work at home, Dziak said.

But telecommuting advocates say the opposite is true: Real productivity increases come when workers are able to work in uninterrupted home offices during times they are most efficient, rather than during rigid 9-to-5 workdays. Home workers also don't need decompression time after lengthy commutes, so their morale rises, which also aids productivity.

Specing out the costs

Telecommuting costs can be minimal if workers use their own equipment. For employers that buy equipment such as laptops, modems and software and pay to put in phone lines, it can cost between $500 and $3,000 per telecommuter, Dziak said.

Companies that convert to the virtual office concept of telecommuting — where workers spend more time at home or on the road than in the office — can save $3,000 to $6,000 per worker in overhead office space, Dziak said.

Companies such as Georgia Power are telecommuting enthusiasts. Frank Boyd, the utility's telecommuting adviser, said a 2-year-old project involving 75 workers was so successful that more workers and managers are clamoring to participate.

In the Georgia pilot, about 15 development workers were sent home with all the office equipment and software needed to access the office network. Other workers were sent to satellite offices that used high-speed T1 or Integrated Services Digital Network phone lines, saving commuting time.

In the first year, telecommuting saved Georgia Power $100,000 in overhead because the firm was able to close some offices.

For the Olympics, many of the 1,000 employees who work downtown will telecommute or work flexible shifts, Boyd said.

For those companies with a mobile workforce, dealing with the Olympic gridlock will be less of a challenge. For instance, some lawyers at the Paul, Hastings, Janofsky and Walker firm already spend a lot of time on the road.

To accommodate telecommuters, more laptops will be shipped from the firm's offices around the country, information systems director Michael Stanko said. The law firm uses Symantec Corp.'s PCAnywhere to dial in to its network; document management software on the server gives attorneys access to a research database.

Remote access is through a "chatterbox" device with supporting software, modems and discrete PCs.

The Metro Atlanta Telecommuting Advisory Council's **Michael Dziak** *says his 'hope is that the Olympics will be a catalyst for [development of] long-term telecommuting policies'*

Working remotely

Forward-thinking Atlanta companies who are eyeing telecommuting as a way to avoid the Olympic crush this July have a variety of options at their disposal.

Some companies will send workers home for the bulk of the Games, which will last two weeks. Others may operate remote work offices closer to suburban homes.

Bound for gridlock

But the Georgia Institute of Technology has a unique problem. The Olympic Village for housing athletes was built on campus, so the university's information technology staff will have to lend technical support to the village. Some workers, particularly IS staff, will have to get to the university despite the gridlock.

But for those not needed on campus, "we will encourage a significant amount of employees [in all departments] to work from home," said Gordon Wishon, vice president of information technology at Georgia Tech.

The university has undergone a "several-million dollar" upgrade to its campus network, which was partly funded by the sponsors of the Olympic Games, Wishon said.

— Mindy Blodgett

Boston Beer

new hardware at its Boston headquarters.

"It's really not as difficult as it seems," said Timothy E. Ostrom, manager of the microbrewery's three-person IS department.

"But I think a lot of executives make it sound that way because they want to be greeted as this great ball of fire for installing SAP," Ostrom said.

The shorter route

Maybe so, but Boston Beer took some very unconventional shortcuts to meet its self-imposed deadline of Jan. 1.

First, rather than assemble and train a big committee to hammer out how it should configure the software, the company turned the work over to three consultants from SAP.

"There's currently a shortage of SAP expertise. Big companies train their people then lose them," explained Martin Roper, the brewery's vice president of manufacturing and business development.

"I'm not interested in training future SAP consultants. As a small company, I can't afford that," Roper said. This year, Boston Beer's total IS budget is approximately $1.3 million.

Boston Beer also couldn't afford any delays, so Roper streamlined configuration decisions, which other R/3 sites have been known to agonize over for weeks or months.

When the SAP consultants asked for a configuration preference, Boston Beer made the decision in less than a day. SAP's R/3 has thousands of tables that must be configured, or customized, for the business.

The software suite runs a variety of applications, from order processing to accounting and production. It replaces several manual and legacy systems to give the brewery a clearer picture of its beer inventory and profits.

Also unusual was the company's use of an earlier version of R/3 software — Release 2.2E — instead of the current Release 3.0.

That was to minimize chances of any extra complications. Already, Boston Beer was adding two brewing locations and was in the throes of its initial public stock offering.

On the technology side, the company shifted its 200 employees off of dumb terminals and Macintoshes and onto networked PCs that run Windows 3.1. The R/3 software runs on a Hewlett-Packard Co. Unix machine with an Oracle Corp. database.

"With everything else going on, we were trying not to disrupt the existing business systems," Roper said.

So Boston Beer decided to forgo the usual business process re-engineering project.

"The philosophy was to get up and running, then figure out how jobs would change," he said. "I think re-engineering delays the process, and I'm real happy we didn't go that route."

Delaying re-engineering "isn't a bad strategy," said Vinnie Mirchandani, an analyst at Gartner Group, Inc. in Stamford, Conn.

"But Boston Beer may be very optimistic in thinking they'll go back and do it. Chances are they won't because after the euphoria of implementation dies down, [the focus shifts] to maintenance," he said.

Boston Beer's Martin Roper *says, 'There's currently a shortage of SAP expertise. Big companies train their people, then lose them.' That's something he can't afford, he adds.*

Solution to this week's crossword puzzle

Web players and late products

Computerworld crossword by Rick Bennett

Who are the players in the war for Web supremacy, and what are the code names for "too-little/too-late" Microsoft products?

ACROSS

1 Comsat milieu
6 Transport
10 Decade of Digital's founding
14 Coordinate or bear
15 Bond nemesis
16 Typical software vendor promise
17 Electric –; MIDI instrument
18 Pinball no-no
19 Band of the light spectrum
20 Airport servicing Novell; abbr.
21 They blasted Gates' monopoly
24 Genghis' family
26 Zeno adherent
27 Straightens
30 "The network is the computer;" e.g.
34 Habitations
35 Extremely angry
38 Simplified Esperanto
39 Novice
40 Web browser targets
41 Patriots, for short
42 One to be baited?
43 Caricaturing
44 A sloping mass of rocks
45 Burnings
47 Sean Connery sci-fi vehicle
49 The relative magnitudes of two quantities
52 Late actor Julia
53 Microsoft Web partner
57 A social or business relationship
60 The content of cognition
61 Egyptian goddess
62 Particular talent
64 A unit of length based on the width of the hand
65 Sad one
66 Suggestive of the supernatural
67 Resident DOS progs.
68 Body fluids
69 Respites

DOWN

1 Old Oracle Corp. internal sales SW acronym
2 Churn
3 Code names for unannounced Microsoft Web products
4 007's creator
5 People who've been invaded by hackers?
6 New frontier in consumer electronics; abbr.
7 Pieces of an opera
8 Nasdaq penalty for cooking books
9 Land values
10 Central American nation
11 Lean-fleshed fish often farmed
12 Med schl. tst.
13 Late space author and fam.
22 Logical operator
23 Make angry
25 Sandwich
27 Superlative prefix
28 Pessimist
29 Pedro's yes yes
31 Code names for unannounced Microsoft Web products
32 Professional class not allowed on Frank Herbert's space ship
33 Looked into, with about
36 Give program object a new name, for short
37 Jason's ship
40 In the head
41 Liberal rights org.
43 Type of retentiveness
44 Did Microsoft rip off their compression technology?
46 Internal & pipe
48 A large vessel for making coffee or tea
50 This *Computerworld*, e.g.
51 Willows having pliable twigs used in basketry and furniture
53 Fam. memb.
54 Early DEC systs.
55 A period of time
56 El prefix; semitic home
58 Def succeeder; Clinton nemesis
59 Supplements with difficulty
63 Born

No. 4   Solution on previous page.   rbennet9@tcd.net

For questions or comments, contact the author at rbennet9@tcd.net.

Inside Lines

The envelope, please!

If you couldn't stay up to watch the Oscars, Sun Microsystems Chairman Scott McNealy shared his own fake Oscar picks during a keynote at last week's Internet & Electronic Commerce Expo in New York. The winners — er, targets — were the following:

Best Supporting Role — "HP Does Bill Gates' Windows."

Best Short Subject — "IBM's Complete Guide to the Internet."

Best New Fiction Sequel — "DEC's Back, No. 14."

Was this a hint, Scott?

On the plane to New York, Scott must have read the Feb. 25 issue of *Newsweek* — the one that featured a lineup of the top "Corporate killers," the downsizing CEOs from AT&T, Digital and IBM. During his keynote, McNealy segued into a non sequitur rant about how corporate downsizing is the American way. "One of the great myths is that there shouldn't be any losers in America," McNealy said. He urged disbelievers to "take a bus trip to countries where they don't have any layoffs or downsizings and compare." His comments drew only a smattering of applause. "At least I got three of you on my side," he joshed, regaining form.

More pink shirts at DEC?

Whispers of impending layoffs are once again circulating around Digital. Sources say the company is mulling a fresh round of layoffs over the next few quarters that won't be quite as drastic as the ones that rocked it in 1994 and 1995. Digital's profitable Multivendor Computers Services Division, largely untouched by previous cuts, could take the brunt this time around because of declining service revenue, the sources said. A company spokeswoman last week denied any specific new workforce cuts, but said DEC is still working its way through previously announced layoffs.

C'mon, relax!

Some people seem to be taking concerns over Internet security a bit far. A *Computerworld* reader recently visited the home page for TGV Software in Santa Cruz, Calif. When he attempted to download an evaluation copy of software, he was told to send an E-mail containing his name, company, telephone number, title and all sorts of other information. After doing so, he was called by a sales representative who quizzed him on exactly what he planned to do with the software. The rep offered a code to download the software — but when the code reached 27 characters, our weary reader gave up. He has nominated TGV, which was recently bought by Cisco, for "Paranoid of the Week." A TGV spokesman declined comment but said he would look into the matter.

Netscape sneaks around

Netscape last week quietly previewed its forthcoming Navigator 3.0 browser. The product, code-named Atlas, includes virtual reality support and more sophisticated Java capabilities. But not all the features expected in Version 3.0 are there yet. Missing is a kit that lets IS managers customize buttons and menus on Navigator. But those functions are expected to be included by Atlas' June ship date. Curious Web users can get the prerelease browser at ftp://ftp.netscape.com/pub/navigator/atlas/pr1/windows/standard/atls32s1.exe.

Vendors will do anything to draw trade show attention. Attendees at Networld/Interop this week can watch live neurosurgery and, every half hour, chat with surgeons at the AT&T booth. They don't have to scrub for this privilege — an ATM backbone links the Las Vegas venue to the Allegheny Health, Education and Resource Foundation in Pittsburgh. Computerworld wants to pick your brain, too, but you don't need anesthesia and ATM. Just call (800) 343-6474 and ask for news editor and amateur neurosurgeon Patricia Keefe, or reach her directly at (508) 820-8183 or tish_keefe@cw.com.

The 5th Wave by Rich Tennant

Life in MousePad Land

OH GREAT! THERE GOES THE BUSINESS!

SHADY OAKS REST HOME.

Once you **venture** into **client/server,** there's no turning back. So you might as well enjoy the ride.

You already know where you want to go with client/server. But do you know exactly how you're going to get there?

Fortunately, there are plenty of companies that can tell you.

Such as the multi-billion dollar bank, handling as many as 120,000 calls a day, that completely reconfigured its customer service operations. The giant retailing conglomerate that totally reengineered its customer database infra-

structure for 500 stores. The information systems developer that integrated a central government's wage and tax system into its accounting and purchasing systems.

All had ambitious business plans, a large number of end users, and an urgent need to support rapidly-changing business processes.

All chose Seer*HPS to develop client/server solutions across their enterprise.

And all found their journey into client/server to be challenging yet extremely rewarding. Mainly because they had the ideal traveling companion. Seer.

Venturing further into client/server

*Call 1-800-499-SEER to learn how others used Seer*HPS for a successful journey through client/server*

SEER ®
We've been there.